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T-TYPE VOLTAGE-GATED CALCIUM CHANNELS AND METHOD OF USING SAME

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TECHNICAL FIELD OF THE INVENTION

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The present invention relates to cloned T-type calcium channels.

BACKGROUND OF THE INVENTION

Biological membranes are themselves generally impermeable to ionic species. Thus, ions enter cells through regulated pores formed from membrane-associated proteins. Most of these regulated pores are voltage-dependent and are thus able to transduce changes in the transmembrane potential into ion flux. Voltage-gated ion channels form a "superfamily" of related proteins (cf. Jan et al., *Nature*, 345, 672 (1990)). Peculiar to this genus is a high degree of conservation in molecular structure. Generally, voltage-gated channels are membrane bound glycolsylated proteins formed of many subunits. Large α subunits form a pore in the membrane that is selective for a given ionic species. Each α subunit contains four domains (I, II, III, and IV). Each channel domain has six putative transmembrane helical segments (S_1 – S_6). In general, the segments within each domain are similar but not identical. Aside from overall structural conservation, certain charged residues within the domains are highly conserved among voltage-gated ion channels (Jan et al., *supra*; Stühmer et al., *Nature*, 339, 597-603 (1989)).

Differences in charged residues between groups of voltage-gated ion channels confer properties unique to each subgroup, such as ion selectivity. For example, most voltage gated ion channels are selective for either sodium, poinssium or calcium. Known calcium channels require a ring of negative charge provided by glutamate residues found at similar locations in each of the domains (Yang et al., Nature, 366, 158-61 (1993)).

Voltage-gated channels are often classified on the basis of their electrophysiology. The resting membrane potential of most animal cells is between about -70 mV and -80 mV. When the membrane becomes depolarized (moved towards 0 mV), various membrane channels become activated (they are said to

"open"). Thus, one basis for classifying membrane channels is the membrane potential necessary to activate (or "gate") them (voltage dependency). For example, "T-type" calcium channels are activated at a lower voltage than L- or N-type channels. (Nowycky et al., Nature, 316, 440-43 (1985)). Other physiological properties are the activation kinetics, inactivation kinetics, tail current (deactivation kinetics), and single channel conductance. Thus, in comparison to other calcium currents, T-type calcium current is characteristically short (Chen et al., J. Gen. Physiol., 96, 603-30 (1990)), and it exhibits characteristically slow activation kinetics near threshold, fast inactivation kinetics, and slow tail current (Randall et al., Neuropharmacol., 63, 879-93 (1997); Carbone et al., Nature, 310, 501-02 (1984); Nilius et al., Nature, 316, 443-46 (1985)).

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Calcium currents have been implicated in many neurological and muscular functions. For example. T-type calcium current is associated with cardiac pacemaker activity, pain transmission in the central nervous system, and in other physiological functions. Defects in T-type calcium current have been implicated in cardiac arrhythmia, hypertension, and epilepsy. Given their potential clinical value, the pharmacological properties of calcium channels have been the subject of extensive study. Most such studies have involved L-type channels because, unlike T-type channels, L-type calcium channels are readily purified from cell extracts. For example, L-type calcium channels have been purified using dihydropyridine drugs (e.g., nifedipine) which can bind with sufficiently high affinity to serve as a ligand for purifying L-type calcium channels. Such purfiled and cloned L-type culcium channels have been used to develop assays for drugs affecting L-type calcium channels (see, e.g., U.S. Patents 5,429,921 and 5,386,025).

While many electrophysiological characteristics of T-type calcium currents are known, the lack of isolated T-type channels has stalled research into the pharmacology and biophysics underlying the T-type calcium current, at least in comparison with other calcium channels. Indeed, while it is generally assumed that voltage-sensitive ion channels are responsible for the current, no such channel protein, nor any nucleic acid encoding such a protein, has been isolated. In view of the foregoing problems, there exists a need for an isolated T-type calcium channel and a nucleic acid encoding a T-type calcium channel.

BRIEF SUMMARY OF THE INVENTION

The present invention provides an isolated or substantially purified nucleic acid encoding a protein comprising at least one domain of a T-type calcium channel and cells and cell lines expressing such nucleic acids. The present invention also provides an isolated or substantially purified T-type calcium channel and an isolated or

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substantially purified antibody molecule recognizing an epitope on a T-type calcium channel protein.

The present invention is useful for exploring the electrophysiology and pharmacology of the T-type calcium current. Such knowledge can lead to the development of drugs for potentiating or attenuating T-type calcium channels. Thus, the present invention provides an assay for identifying potential drugs affecting T-type calcium channels by exposing cells expressing a T-type calcium channel to a putative drug and then measuring the calcium flux in response to a change in membrane potential. The identification of drugs affecting T-type calcium channels will facilitate even greater understanding of the biophysics of these proteins. Furthermore, some such drugs could have potential clinical applications.

The invention can best be understood with reference to the accompanying drawings and in the following detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1E compare the complete amino acid sequences of three types of T-type calcium channels (α 1G (or Ca,T.1), α 1H (or Ca,T.2), and α 1I (or Ca,T.3)), indicating conserved functional domains.

Figures 2A-2D are graphic representations of the current-voltage relationships of three cloned T-type calcium channels (Figures 2A, 2B, and 2C) and a cloned R-type calcium channel (Figure 2D).

Figure 3A is a graphic representation of the average current-voltage curve for cloned T-type calcium channels (c1G, triangles, c1H, inverted triangles, c1L, circles), and a cloned R-type calcium channel (filled squares). Figure 3B compares the normalized conductance of a cloned T-type calcium channel at three different concentrations of BaCL.

Figure 4 depicts average kineties of the tail current as a function of repularization potential for α 1G (triangles), α 1H (inverted triangles), α 11 (circles), and a cloned R-type calcium channel (filled squares).

Figures 5A and 5B graphically present data concerning the use of a cloned Ttype calcium channel to detect drugs affecting the channel. Figure 6A depicts the effect of 100 µM on current-voltage relationships with a single dosage of miberfradil. Figure 6B illustrates the effect on T-type channel conductance of various doses of miberfradil.

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DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides an isolated or substantially purified nucleic acid encoding a protein comprising at least one domain of a T-type calcium channel α

subunit. The nucleic acid can be of any type, and it can include other elements aside from a sequence encoding a T-type calcium channel domain or domains. For example, where the nucleic acid comprises RNA, it can also include regulatory sequences suitable to permit translation of the RNA. Thus, an RNA nucleic acid of 5 the present invention preferably has at least one ribosome entry site, and preferably has a polyadenosine tail for stabilizing the RNA in the cellular environment. Similarly, DNA nucleic acids of the present invention can have regulatory elements for promoting the transcription of sequence encoding the T-type calcium channel into an RNA such as that described above. For example, a DNA nucleic acid of the present invention can have a promoter and/or an enhancer sequence. While the nucleic seid can be any type of nucleic seid, the nucleic seid preferably comprises a cDNA. A cDNA nucleic acid is preferred over other nucleic acids to permit the nucleic acid to be readily cloned, sequenced, and expressed in a wide variety of cells.

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The choice of promoter and/or an enhancer will largely depend on the milieu in which the nucleic acid is to be expressed. Thus, for expression in bacterial cells, the regulatory elements are bacterial promoters. Similarly, for expression in mammalian cells, the regulatory elements are able to effect expression in mammalian cells. While many such regulatory elements are known in the art, examples include prokaryotic promoters and virui promoters (e.g., retroviral ITRs, LTRs, immediate early viral promoters (IEp), such as herpesvirus IEp (e.g., ICP4-IEp and ICP0-IEp). cytomegalovirus (CMV) IEp, and other viral promoters, such as Rous Sarcoma Virus (RSV) promoters, and Murine Leukemia Virus (MLV) promoters). Other suitable promoters are eukaryotic promoters, such as enhancers (e.g., the rabbit β-globin regulatory elements), constitutively active promoters (e.g., the β-actin promoter, etc.), signal specific promoters (e.g., inducible promoters such as a promoter responsive to RU486, etc.), and tissue-specific promoters (e.g., those active in epidermal tissue, dermal tissue, tissue of the digestive organs (e.g., cells of the esophagus, stomach, intestines, colon, etc., or their related glands), smooth muscles, such as vascular smooth muscles, cardiac muscles, skeletal muscles, lung tissue, hepatocytes, lymphocytes, endothelial cells, sclerocytes, kidney cells, glandular cells (e.g., those in the thymus, ovaries, testicles, pancreas, adrenals, pituitary, etc.), tumor cells, cells in connective tissue, cells in the central nervous system (e.g., neurons, neuralgia, etc.), cells in the peripheral nervous system, and other cells of interest).

The isolated or substantially purified nucleic acid of the present invention encodes all or part of a T-type calcium channel a subunit. As used herein, a "calcium channel" includes a protein structure for facilitating the flux of calcium ions across a biological membrane into which the calcium channel is inserted. As used herein, a "T-type channel" is a type of voltage-gated ion channel that facilitates the flux of ions when the membrane potential of a biological membrane into which it is inserted experiences a slight depolarization. Thus, a T-type calcium channel can begin to gate from about -60 mV to about -30 mV (i.e., about -45 mV to about -35 mV) in about 10 mM Ba³⁺. Additionally, T-type channels of the present invention exhibit a slow deactivation (tail current) following depolarization. Thus, a T-type calcium channel can exhibit a tail current that decays exponentially with a tau value from about 1 ms to about 10 ms (e.g., from about 4 ms to about 7 ms, such as about 6 ms) following repolarization to a membrane potential from about -80 mV to about -60 mV in a solution with a Ba³⁺ concentration of from about 10 mM to about 40 mM. Another defining characteristic of T-type calcium channels is that they exhibit small single channel conductance. Thus, for example, a T-type channel exhibits a single channel conductance of from about 4 pS to about 12 pS (e.g., from about 6 pS to about 10 pS), and typically from about 7 pS to about 9 pS in a solution with a Ba²⁺ concentration of about 0.1 M.

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The isolated or substantially purified nucleic acid of the present invention encodes all or part of any T-type calcium channel having at least one of the aforementioned electrophysiological properties when properly assembled within a cellular membrane. The general structure of calcium channels is summarized above and is otherwise known in the art. Thus, for example, the nucleic acid can encode one of the four functional domains mentioned above. As used herein, a domain of a Ttype calcium channel is any protein structure able to associate with three other domains to form a tetrameric body functioning as a T-type calcium channel. While the native T-type calcium channel structure includes all four domains in a single polypeptide (indicated in Figures 1A-1E), a domain can exist as a polypeptide species separate from those containing the other domains. Such separate domains are able to associate within the plasma membrane to form a functional channel. Alternatively, where a plurality of domains are linked within a common polypeptide, the linkage can deviate substantially from the native linkage. Thus, for example, the domains can be linked by polypeptide sequences other than those sequences linking the domains in the native protein (e.g., non-native polyglutamate linkages). Indeed, the domains themselves can include non-native linkages between membrane-spanning elements within the domains. Aside from these modifications, the nucleic acid can encode a chimeric calcium channel domain (or an entire channel) comprising a portion of a Ttype calcium channel and a portion derived from another calcium channel (or other channel) protein. For example, the chimera can include portions of domains from Ttype channels responsible for low voltage gating and portions of domains from other calcium channels responsible for slow inactivation. Such a protein exhibiting T-type gating but longer inactivation kinetics would facilitate pharmacological research.

As mentioned, nucleic acids of the present invention can encode an entire Ttype channel (i.e., a T-type channel protein comprising four functional domains). It has been discovered that at least three genes encoding T-type calcium channels exist in farmans and rats (i.e., \alpha IG (or Ca, T.1), \alpha IH (or Ca, T.2), and \alpha II (or Ca, T.3)), and alternate splicing of these isoforms exist. Examples of the amino acid sequences of full-length T-type channels, and the sequences of suitable coding nucleic acids are set forth at SEQ ID NOs:1-8 (a1G sequences), SEQ IS NOs:9-10 (a1H sequences), and SEO ID NOs: 11-12 (a11 sequences). However, the invention is not limited to these exemplary sequences. Indeed, as mentioned, an amino acid sequence of a T-type calcium channel can vary from those listed, and it is within the state of the art to change a nucleotide sequence encoding a T-type channel to introduce mutations into the protein. Indeed, for conducting electrophysiological assays, it may be desirable to introduce mutations into such a protein. For example, mutations comprising insertions or deletions can be introduced on either the amino- or carboxy-terminus of the protein, or such mutations can be intrasequence insertions or deletions. Where the electrophysiological properties of the calcium channel are to be conserved, such mutations preferably are in regions other than the membrane spanning domains. However, in some applications (e.g., to decrease inactivation kinetics), the changes can be within the membrane-spanning regions. Moreover, as mentioned above, the sequence can form a protein having only one functional domain of a T-type calcium channel. Additionally, the sequence can also form a chimeric protein or domain, such

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as those described above.

Aside from insertions and deletion mutations of native T-type calcium channel sequences, a T-type calcium channel can include substitutions of amino acid residues, e.g., for those indicated in SEO ID NOs:1-12. Preferably, and especially where such a substitution is within a membrane spanning region, the substitution is conservative. Thus, within membrane spanning domains, positively-charged residues (H, K, and R) preferably are only substituted with positively-charged residues; negatively-charged residues (D and E) preferably are only substituted with negatively-charged residues; neutral polar residues (C, G, N, Q, S, T, and Y) preferably are only substituted with neutral polar residues; and neutral non-polar residues (A, F, I, L, M, P, V, and W) preferably are only substituted with neutral non-polar residues. Preferably, any amino-acid substitution within the membrane-spanning regions does not alter this conservation. Most preferably, any substitution, deletion, or insertion does not after the IVS4 domain. In each of the exemplary T-type calcium channel a subunit sequences, the putative IVS4 region comprises SEQ ID NO:13. Given the strong sequence conservation among families of voltage-gated ion channels, it is likely that this sequence or a derivative sequence, will be present in T-type channels. Thus, the

present invention provides any T-type calcium channel (or a nucleic acid encoding such a T-type calcium channel) comprising SEQ ID NO:13 or a sequence derived from SEQ ID NO:13 having conservative amino acid substitutions, as described above.

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The nucleic acid of the present invention encoding all or a part of a T-type calcium channel can be isolated via any suitable method. For example, prior to the present invention, one of skill in the art could design a probe based on the sequence of known, non-T-type, calcium channels and use such probe to screen a genetic library. If such a screen were to identify a putative calcium channel, the researcher could then attempt to clone the entire nucleic acid to characterize it. Similarly, prior to the present invention, to isolate a nucleic acid encoding a T-type calcium channel, one of skill in the art could consult publicly available databases containing DNA sequences (e.g., Genbank) to locate nucleic or amino acid sequences representing a portion of a T-type calcium channel protein or nucleic acid. However, such databases contain no sequence for a full-length T-type calcium channel or identify any sequence as a T-type channel. Such methods assume that T-type calcium channels share sufficient sequence identity with known calcium channel nucleic acids to cross-hybridize, an assumption not supported by any published report. Moreover, prior to the present invention, no partial sequence in such databases was identified as corresponding to a 20 T-type calcium channel. Thus, prior to the present invention, the presence of partial sequences in the public DNA databases could facilitate the isolation of T-type calcium channels only with the exercise of a considerable degree of speculation on the part of the researcher.

By providing several sequences pertaining to T-type calcium channels and a comparison presenting conserved regions and domains, the present invention greatly facilitates the isolation of other nucleic acids encoding T-type calcium channels (or derivatives thereof) with much less experimentation. Thus, while any of the methods discussed above can be employed to isolate other members of this genus, preferably, a nucleic acid encoding a T-type calcium channel is isolated by probing a genetic library using a probe that hybridizes to a DNA encoding a peptide sequence contained in (or similar to) a known T-type calcium channel (e.g., SEO ID NOs:1-12). To facilitate the isolation of a T-type calcium channel, the present invention provides an isolated polynucleotide hybridizing to a portion of the nucleic acid of the present invention encoding a T-type calcium channel (or a portion thereof). Thus, for example, the 35 present invention includes an isolated polynucleotide hybridizing to SEQ ID NO:1-12. The isolated polynucleotide can hybridize to all or any portion of the sequence encoding the T-type calcium channel.

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To isolate such a polynucleotide, any portion of a sequence encoding a T-type cálcium channel can be employed as a probe to screen a genetic library, and such screening can be accomplished by standard techniques known in the art. While the probe can hybridize to any portion of such a DNA, preferably the probe is designed to hybridize to a DNA encoding a polypertide sequence that is highly conserved among T-type caleium channels but is less conserved between the genus of T-type caleium channels and other proteins. Such peptide sequences are readily apparent from the sequence comparison set forth in Figures 1A-1E. Generally, the specificity of hybridization in a genetic screen varies depending on the length of the probe and the stringency (e.g., temperature, salt and detergent concentration, etc.) of hybridization. Stringency of hybridization is broadly classified as "high," "moderate," or "low," and the parameters of these terms are well recognized in the art (see, e.g., Sambrook et al., "Molecular Cloning, a Laboratory Manual," Cold Spring Harbor Press, 1989). The isolated polynucleotide hybridizing to a portion of the nucleic acid encoding a T-type calcium channel can hybridize under any desired stringency conditions. However, for identifying other T-type channels, preferably, the hybridization occurs under moderate stringency, and most preferably under high stringency.

Of course, the isolated or substantially purified polynocleotide can itself be employed as a probe to screen a library as described to isolate a second nucleic acid. In such a screen, one of the polynocleotides will be complementary to a portion of the sequence encoding the T-type calcium channel, and the other isolated nucleic acid will be "sense." Preferably, one of the two isolated polynucleotides (the "sense" strand) itself encodes a T-type calcium channel, or at least one domain thereof. Such a sequence can be cloned to be operably linked to suitable regulatory elements, as described, to produce a T-type calcium channel. Thus, aside from using the nucleic acid of the present invention to produce a T-type calcium channel, the nucleic acids of the present invention are also useful for isolating other sequences encoding T-type calcium channels, or derivatives thereof.

However isolated, the isolated or substantially purified nucleic acid of the present invention is useful, in part, for producing all or a portion of a T-type calcium channel. Thus, the nucleic acid can be introduced into a suitable milieu for driving its expression. Because T-type channels are transmembrane proteins, preferably such a milieu is a living cell. However, it should be understood that the nucleic acid can also be expressed in vitro under conditions, such as those known in the art, suitable for in vitro transcription and translation. However produced, the present invention includes any protein, such as a recombinant protein or an isolated or substantially purified protein, including all or a portion of a T-type calcium channel or a protein derived from a T-type calcium channel.

For expression in a living cell, the nucleic acid must be introduced into the cell. As nucleic acids are generally introduced into cells as part of genetic vectors, the present invention provides a vector having a T-type calcium channel nucleic acid of the type described above. Any type of vector suitable far introducing the nucleic acid into a host cell is within the context of the present invention. Examples of such vectors include naked DNA and RNA vectors (such as oligonucleotides, plasmids, capped cRNA, etc.), viral vectors such as adeno-associated viral vectors (Berns et al., Annals of the New York Academy of Sciences, 772, 95-104 (1995)), adenoviral vectors (Bain et al., Gene Therapy, 1, S68 (1994)), herpesvirus vectors (Fink et al., Ann. Rev. Neurosci., 19, 265-87 (1996)), packaged amplicons (Federoff et al., Proc. Nat. Acad. Sci. USA, 89, 1636-40 (1992)), pappiloma virus vectors, picornavirus vectors, polyoma virus vectors, etroviral vectors, SV40 viral vectors, vaccinia virus vectors, and other vectors. Once a given type of vector is selected, its genome must be manipulated for use as a background vector, after which it must be engineered to incorporate exogenous polynucleotides. Such manipulations are known in the art.

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The vectors of the present invention are useful for introducing a nucleic acid encoding all or a portion of a T-type calcium channel into a host cell. Thus, the present invention provides a cell into which the vector of the present invention has been introduced. The host cell can be any cell suitable for expressing the nucleic acid (e.g., bacteria, insect cells, mammalian cells, etc.). The host cell can thus be in vitro or in vivo. Preferably the cells do not exhibit native T-type calcium current. A preferred cell type is HEK-293 cells because they contain genetic elements that facilitate the expression of transgenes from a variety of expression vectors. For facilitating electrophysiological recordings, occytes (e.g., Xenopus occytes) are preferred, as they are large and readfly handled.

The vector can be introduced into the cell in any manner suitable for the cell type and vector employed. In one embodiment, the vector can be used to prepare an RNA transcript in virro (e.g., a capped cRNA) which is then introduced into the host cell by standard methods (such as injection). Such techniques are preferred when the host cells do not actively transcribe DNA (such as oocytes). In other embodiments, a DNA vector is introduced into the cell such that it is transcribed within the cell. For example, the vector can be introduced into the cell such that it forms an extrachromosomal segment of genetic material in the cell, as is the case with many types of viral vectors. Alternatively, the vector can introduce the nucleic acid into the chromosomal DNA of the host cell.

Preferably, a cell into which the nucleic acid is introduced is also able to express the nucleic acid to produce the α subunit protein. The expression of the nucleic acid can be detected by probing the cell for the presence of T-type calcium

channel niRNA, such as via Northern hybridization analysis, in situ hybridization, etc. More preferably, however, the cell is able to express the nucleic acid to produce the protein including all or a portion of a T-type calcium channel. In such cells, expression of the nucleic acid is confirmed by detecting the protein, for example, by probing cellular extracts with an antibody recognizing the protein (e.g., on a Western blut, etc.)

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In the membrane of the cell producing the protein, the expressed protein contributes to the formation of a functional calcium channel. Where the protein encodes an entire a subunit, the full protein will possess some or all of the electrophysiological properties of T-type calcium channels described above. Where the protein encodes less than an entire channel \alpha subunit (e.g., a domain), the protein will approprie with other constituent domains in the membrane to form a functional channel. Thus, the presence of the protein can be detected by assaying the cell for T-type calcium channel activity, Indeed, assaying for channel activity serves to determine whether a nucleic acid encoding a putative calcium channel, in fact, encodes a species of T-type channel (as opposed to a member of another genus of calcium channels). For example, when large cells (e.g., oocytes) are used as the host cells, the electrophysiological properties of the channel can be investigated. Thus, the membrane activity of whole cells expressing the nucleic acid can be measured directly, such as via patch clamp techniques using a voltage clamp electrode and a current electrode (Bernal et al., J. Pharmacol. Exp. Ther., 282, 172-80 (1997)). Alternatively, the activity of single channels can be measured, such as with a standard depolarizing bath and pipette solutions (Lacerda et al., Biophys. J., 66, 183-43 (1994)). However measured, the properties of cells into which the putative nucleic acid is introduced are compared to the channel conductance, voltage dependency. activation kinetics, inactivation kinetics, or tail current known for T-type channels and discussed above. A measure of current density (e.g., pA/pF) can also be used to assess the level of gene expression in the cells, normalizing for cellular volume.

While, in accordance with the present invention, an isolated cell into which the T-type calcium channel nucleic acid has been introduced (and preferably stably expressing the nucleic acid to produce the protein) can be prepared, preferably, such transfection protocols result in a population consisting essentially of such transfected cells. For standardizing the results of many experiments, it is even more destrable to employ an established cell line consisting essentially of such cells. Preferably, for use in high throughput assays, cell lines stably expressing a T-type calcium channel exhibit a current density of at least about 40 pA/pF (e.g., at least about 45 pA/pF), such as about 50 pA/pF or even 55 pA/pF or higher. Preferably, a cell line in accordance with the present invention is able to propagate the nucleic acid through

several passages (e.g., for at least 10 passages), and, preferably, the nucleic acid is stably integrated into the chromosomes of such cells. Thus, the cell line can propagate the nucleic acid for at least 20 passages, and more preferably significantly more than 20 passages (e.g., at least about 25 passages, or even more).

Regardless of the cell system, the ability to express a T-type calcium channel nucleic acid within host cells to produce an active channel permits the channel to be further studied. In this regard, the present invention provides a method of identifying a drug which affects T-type calcium channels. The method involves first expressing a T-type calcium channel in a cell to produce an active channel, as herein described. The cell expressing the channel is then exposed to a solution containing a putative drug for interfering with the channel. Thereafter, the presence or absence of calcium

flux in response to a change in membrane potential is assayed. Any such assay can be

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employed within the context of the present invention, (e.g., using labile dyes, radioisotopes (e.g., *Ca), recording electrophysiological changes in the membrane, etc.). A quick method of assaying for calcium flux is first to introduce a calcium-sensitive labile dye into the cells. For example, the dye can be one such as those that fluoresee or change color in the presence of calcium, many of which are known to those of skill in the art (e.g., Indo-1). Thereafter, the cells are exposed to a depolarizing solution containing high (e.g., about 50 mM) potassium concentration and a drug, and the reaction of the labile dye is compared to control cells. Using a labile dye affords the ability to assay many putative drugs quickly in a high throughput assay for putative drugs affecting T-type channels. For example, the initial

acreening can be carried out in 96 well plates. Moreover, dose-response data can be readily generated by exposine the cells to several concentrations of the same putative

Once a putative drug is detected, its effect on the electrophysiology of the cell (e.g., single channel conductance, voltage dependency, activation kinetics, inactivation kinetics, and tail current of the cells) can be investigated in detail. Generally, the effect of the putative drug on T-type calcium currents is assessed by measuring the various electrophysiological parameters in the presence of various concentrations of the drugs and comparing the data to untreated (or sham-treated) control cells. Cells preferably are maintained in a continuous perfusion chamber during such experiments to facilitate changing solutions. The inventive method of identifying a drug which affects T-type calcium channels can employ any nucleic acid encoding a T-type calcium channel (or derivative thereof), such as those nucleic acids described herein. In fact, as several isoforms of T-type channel exist, the assay method can be repeated using nucleic acids encoding different isoforms to identify

drugs that preferentially target a given isoform, or drugs which affect more than one isoform of T-type calcium channels.

Aside from affording an in vitro assay for detecting potential therapeutic or investigative drugs targeting T-type calcium channels, the method of expressing the T-type calcium channel nucleic acid can also be used in vivo. For example, as mentioned, several neurological and muscular diseases or disorders have implicated mutations affecting native nucleic acids encoding T-type calcium channels. The present invention, thus, provides a method of treating a disease or disorder associated with a deficiency in a native T-type calcium channel nucleic acid. The method involves introducing a vector having the T-type calcium channel nucleic acid into cells of a bost in which native expression of the nucleic acid is deficient. Thus, for example, for treating cardiomyopathy associated with deficiencies in T-type calcium channels, the vector is introduced into myocardial cells. Similarly, for treating forms of epilepsy associated with deficiencies in T-type calcium channels, the vector is introduced into neurons (e.g., thalamic neurons). Within the target cells, the nucleic acid within the vector is expressed to produce active T-type calcium channel. By similar methods, an nucleic acid having a sequence antisense to a sequence encoding a T-type calcium channel (or a portion thereof) can be expressed within a cell. The presence of an antisense sequence can down-regulate the expression of native T-type calcium channel genes by hybridizing to T-type channel mRNA within the cell. Thus, the present invention is useful to treating disorders associated with over-expression of T-type calcium channels.

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T-type channel proteins (such as whole T-type calcium channels, domains of such channels, chimeras including portions of T-type calcium channels, etc.) can be employed to generate antibodies (e.g., immunoglobulins) to T-type calcium channels. Thus, the present invention provides an isolated and substantially purified antibodies molecule recognizing an epitope on a T-type calcium channel. Such antibodies can be monoclonal antibodies or polyclonal antisera. Antibodies recognizing T-type calcium channels can be used to purify the channels from cell extracts or other solutions by standard methodologies (e.g., immunoprecipitation). Moreover, depending on the location of the epitopes for the antibodies on the T-type calcium channel, the antibodies can be used to affect the channel proteins present on the surface of cells. Thus, antibodies directed to T-type calcium channels are potential reagents for studying the channels as well as for therapy.

Such antibodies can be produced by any suitable method, many of which are well known in the art. Thus, for example, the antibodies can comprise polyclonal antisera obtained from innoculated animals. Alternatively, the antibody molecules can be monoclonal antibodies obtained from a cell line (e.g., a hybridoma cell line). Thus,

the present invention provides a cell which produces such antibodies. Such a cell can be in vitro or in vivo; however, where the cell is in vitro, preferably it is within an established cell line consisting essentially of such cells.

Several examples are presented below to illustrate the invention. Taken together, the examples demonstrate the cloning of twelve novel proteins and their characterization as T-type calcium channel α subunits. These examples are included here for purely illustrative purposes; as such, they are not to be construed so as to limit the scope of any aspect of the invention.

Many procedures employed in the following examples are techniques routinely performed by one of ordinary skill in the art (see generally Sambrook et al., Molecular Cloning, A Laboratory Manual. Cold Spring Harbor Laboratory. Cold Spring Harbor (NY (1989)) and are not discussed in detail. However, some reagents and methods deserve specific description. Thus, for example, in vitro translation and expression were conducted as described previously (Schneider et al., Receptors and Channels, 2, 255-70 (1995)). Xenopus laevis oocytes were prepared as described previously (Bernal et al., J. Pharmacol. Exp. Ther., 282, 172-80 (1997)). To express proteins, 10 or 30 ng of capped cRNA was injected into the oocytes in a volume of 50 nl. For single channel recording, oocytes were injected with 100 ng capped cRNA and incubated for one week prior to assay.

Cells were voltage clamped using a two-microelectrode voltage clamp amplifier as described (Bernal et al., *J. Pharmacol. Exp. Ther.*, 282, 172-80 (1997)). The standard bath solution contained the following: 40 mM Ba(OH), 50 mM NaOH, 1 mM KOH, 0.1 mM EDTA, and 5 mM HEPES, adjusted to pH 7.4 with methanesulfonate. The osmolality of the 2 mM Ba²⁺ and 10 mM Ba³⁺ solutions was balanced by increasing the NaOH concentration as described (Lory et al., *J. Physiol.*, (London), 429, 95-112 (1990)). Voltage and current electrodes (1.5-1.8 M tip resistance) were filled with 3 M KCl. Except as noted, data were acquired at 4 kHz using the pCLAMP system, and filtered at 1 kHz. Data were analyzed using pCLAMP software. Boltzman fits and linear regression were calculated using Prism.

EXAMPLE I

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This example demonstrates the cloning and characterization of putative T-type calcium channels.

A search of the Genbank library was conducted to identify clones identified as having some degree of homology to known calcium channel sequences. The search identified an expressed sequence tagged (EST) partial sequence in a human brain clone (H06096), which was used as a probe to screen a Agt10 cDNA library prepared

from rat brain. Successive screening of the cDNA library identified five overlapping clones which were aligned to construct an entire cDNA sequence, termed a1G.

The α IG cDNA was cloned into the pSP727™ vector and sequenced by standard computer-assisted sequencing. Using the a1G cDNA, the amino acid 3 sequence of the α1G protein was deduced and compared to the sequences of other known calcium channel \alpha subonits. By similar methods, homologous human (H19230 and R19524) and mouse (AA286626) EST clones were also identified and partially sequenced, and alternately spliced variants were identified. The deduced cDNA and amino acid sequences for eight full-length \(\alpha \) IG T-type channels are set forth, respectively, as SEQ ID NOs:1-8.

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A second T-type calcium channel, termed a H, was isolated by screening a burnan heart cDNA library with a fragment of the alG sequence. An alternately spliced isoform was also identified. The full-length cDNA and amino acid sequences for these of HT-type channels are set forth, respectively, as SEQ ID NOs:9 and 10.

A third T-type calcium channel, termed a H, was isolated by screening a rat brain cDNA library at low stringency using a fragment of the rat \alpha I G gene. Fifty plaques were identified, many of which were not detected in a second screening. A third screening with a fragment from Q1H identified two clones. Subsequent screening, and the use of the GenBank database, led to the identification of the full length rat and human cDNA and amino acid sequences, set forth at SEO ID NOs: 11 and 12, respectively.

The α1G, α1H, and α11 amino acid sequences were compared to each other and a known calcium channel (rall) to investigate the conservation of protein structure and function. The comparison indicates that the αIG , αIH , and αII amino acid sequences within the putative membrane-spanning domains are about 90 % identical to each other, while the α IG, α IH, and α II sequences are only roughly 40 % identical to the al E clone.

Figures 1A-1E indicate this conservation between the proteins. The conservation of charged residues, particularly in the \$4 domains, is consistent with the role of the a1G, a1H, and a11 proteins as ion channels. However, two of the glutamates associated with ion specificity in other calcium channels have been replaced with aspartate, suggesting aftered ion selectivity. Strikingly, o.1G, a.1H, and all display only low homology to sequences linking the membrane-spanning regions within each domain, and even less homology between the intraceflular loops linking domains. Notably, neither \(\alpha \) IG, \(\alpha \) H, nor \(\alpha \) II possesses sequences known to bind \(\beta \) submitte or Ca2e ions

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EXAMPLE 2

This example demonstrates the production of cell lines stably expressing the cloned α 1G, α 1H, and α 1I proteins.

HEK-293 cells were transfected with either the rat α IG cDNA (SEQ ID NO:1), the human α IH cDNA (SEQ ID NO:9), or the rat α II cDNA (SEQ ID NO:11). As a control, cells were also transfected with human α IE plus human β3 (Schneider et al., Receptors Channels, 2, 255-70 (1994); Murakami et al., Eur. J. Biochem., 236, 138-43 (1996)). The DNA constructs included a neomycin resistance gene conferring resistance to G418. The cells were cultured under standard conditions using medium containing G418 to select for stable transformants.

Surviving clones were expanded and assayed for electrophysiological activity to determine the presence of channels within the membrane. Whole-cell currents were recorded from ruptured patches using an Axopatch 200A amplifier, Digidata 1200 A/D converter, and pCLAMP 6.0 software. Data were dightized at 2 kHz and filtered at 1 kHz or off-line. All experiments were performed at room temperature. Pipettes were made out of TW-150-6 capillary tubing (World Precision Instruments, Inc., Sarasota, FL), using a Model P-97 Flaming-Brown pipette puller (Sutter Instrument Co., Novato, CA). The internal pipette solution contained the following: 55 mM CsCl, 75 mM CsSO., 10 mM MgCls, 0.1 mM EGTA, 10 mM HEPES, pH adjusted to 7.2 with CsOH. The external Tyrodes solution was the following: 140 mM NaCl, 6 mM KCl. 2 mM CaCls, 10 mM glucose, 5 mM HEPES, pH 7.4. The recording solution contained the following: 10 mM BaCl- solution (or 2 mM CaCl-), 140 mM tetraethylammonium (TEA) chloride, 5 mM CsCl. 1 mM MgCl₂, 5 mM glucose, and 10 mM HEPES, pH adjusted to 7.4 with TEA-OH. Under these solution conditions the pipette resistance was typically 1.5-2.5 MΩ. Cell canacitance was measured by integrating the charging current during a 10 mV hyperpolarizing pulse (holding

Using these recording techniques, values for pA/pF were obtained for each cell line, which is a measure of current density normalizing fer cell size. One clone (#N2) expressed the rat all G protein and has a current density of 42 pA/pF. Another clone (#13), expressed the human all H protein and exhibited a current density of 53 pA/pF. Three clones (#11, #19, and #25) expressed the rat all protein and exhibited current densities of 40 pA/pF, 45 pA/pF, and 55 pA/pF, respectively

35 EXAMPLE 3

potential -80 mV).

This example demonstrates that the cloned putative T-type calcium channels exhibit T-type current-voltage relationships. Current traces were elicited by depolarizing voltage clamp pulses of the membranes of cells. The \(a\)1\(\text{L}\) and \(a\)1\(\text{L}\) proteins were produced in \(\text{Xenopus laevis}\) oocytes by linearizing the DNA vectors containing the coding sequences, and transcribing the coding sequences in \(\text{vitro}\) by standard methods. Oocytes were then injected with the capped RNA.

Figures 2A-2E depict data obtained from these experiments using cells injected with αIG (Figure 2A), αIH (Figure 2B), and αII (Figure 2C) and αIE (Figure 2D). These data indicate that cells expressing αIG , αIH , and αII exhibit T-type calcium current, while oneytes expressing αIE as well as uninjected oneytes (Figure 6A) do not

Current voltage curves were developed using cells injected with $\alpha 1G$, $\alpha 1H$, $\alpha 1I$, and $\alpha 1E$. Figures 3A depicts such data generated in a 10 mM Ba³⁺ test solution. These data were transformed into conductance and fit with a Boltzman equation to determine the midpoint of activation ($V_{0.5}$). Gating potentials for $\alpha 1G$, $\alpha 1H$, and $\alpha 1I$ (-38 ± 1 mV n=8, -44 mV ± 1 mV, n=10, and -31 mV ± 1 mV, n=6. respectively) were in accordance with the gating potential measured for the HEK-293 cells (-41 ± 1 mV, n=10), while $\alpha 1E$ required significantly more positive potentials to open (-2.6 mV ± 4 mV, n=3).

To compare the characteristics with published values (Huguenard, Ann. Rev. Physiol., 58, 329-48 (1996)), the α 1G current was recorded at varying concentrations of Ba²⁺. As indicated in Figure 3B, in solutions containing 2 mM Ba²⁺. Ve₃ wes -46.5 mV, and the slope factor (&) was 6.6 (n=7). However, when the Ba²⁺ concentration was 40 mM, Ve₃ was recorded at -21 mV, presumably due to the results of barium on surface charge screening (see, e.g., Wilson et al., J. Membrane Biol., 72, 117-30 (1983)). Slimilar values were recorded for α 1H and α 1I.

These results indicate that α 1G, α 1H, and α 1I are low-voltage activated calcium channels (i.e., from about -60 mV to about -30 mV in 10 mM Ba^{2*}).

EXAMPLE 4

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This example demonstrates that the cloned putative T-type calcium channels exhibit T-type tail current.

Tail current was measured at -90 mV after first opening the channels with a voltage step to -10 mV. The voltage-dependence of tail current in celts expressing a1G (oocytes) a1B (HEK 293 celts), and a1I (HEK 293 celts) was measured at varying test potentials. As a control, tail current was also measured from a high voltage activated channel a1E, which Raw data from recordings data were fit with a single exponential and plotted as a function of depolarization potential (Figure 4).

These results demonstrate that the tail currents for the cloned αLG , αJH , and αH calcium channels are voltage-dependent, consistent with known T-type calcium tail currents. Additionally, these data demonstrate that the tail current for each of the cloned channels is between about 1 ms and about 10 ms following repolarization to a membrane potential from about -80 mV to about -60 mV in a solution with a barium concentration of from about 10 mM to about 40 mM

EXAMPLE 5

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This example demonstrates that the closed putative T-type calcium channels exhibit T-type single channel conductance.

Measurement of single channel conductance is complicated by the low probability of channel opening at negative potentials when the driving force is large. Thus, single channel conductance was measured similarly for measurements of tail currents to enhance channel opening at negative potentials. Single channels were measured with standard depolarizing bath and pipette (115 mM BaCl₂, 1 mM EGTA, and 10 mM HEPES, pH 7.4) solutions (Lacerda et al., *Biophys. J.*, 66, 1833-43 (1994)). Data were analyzed with TRANSIT (VanDongan, *Biophys. J.*, 70, 1303-15 (1996)). Single channel amplitudes were measured by averaging the values obtained from Gaussian fits to all-points histograms of traces with openings, selected openings, or amplitude histograms of idealized openings. It has been reported that some occytes contain a native 9 pS channel. These endogenous channels can be distinguished by their 2-fold larger current amplitudes at the potentials tested (e.g., -20 mV, i = 0.8 for endogenous channels as opposed to 0.4 pA for ct (G). However, such endogenous channels were not detected either at the whole cell or single channel level in the oocytes tested.

Current through the main open state of each open channel was measured at each potential and plotted against each test potential. Single channel currents for several patches were then averaged and plotted as a function of test potential, wherein the slope of the plot indicated the single channel conductance. The average slope conductance of the $\alpha 1G$ channel was measured at 7.5 \pm 1.5 pS, which corresponds with the reported values for T-type calcium channels (Hugenard, Ann. Rev. Phsysiol., 58, 329-48 (1996)). Similar results were also obtained with both $\alpha 1H$ (10.8 \pm 1.4 pS). Data collected from recordings of the $\alpha 1I$ channels indicate that they open to two distinct amplitudes. The conductance for the small amplitude $\alpha 1I$ openings was measured at 3.9 \pm 0.5 pS, while that for the large $\alpha 1I$ openings was measured at 11.4 \pm 0.5 pS).

These results indicate that the cloned $\alpha 1G$, $\alpha 1H$, and $\alpha 1I$ proteins exhibit T-type single-channel conductance (e.g., from about 4 to about 12 pS),

EXAMPLE 6

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This example demonstrates that a cloned T-type calcium channel can be used for identifying a drug which affects T-type calcium channels.

HEK-293 cells were subjected to treatment as indicated above in Example 3, except that an experimental group of cells were exposed to a solution containing 1 μM mibefradil, a known inhibitor of T-type calcium current. As depicted in Figure 5A, the presence of mibefradil almost completely abolished T-type current in cells expressing $\alpha 1G$. Cells expressing either $\alpha 1G$ or $\alpha 1H$ were similarly treated using various concentrations of mibefradil to determine a dose-response relationship. These results, depicted in Figure 5B, demonstrate that about 50% inhibition was achieved at a mibefradil concentration of 1 μM .

All of the references cited herein, including patents, patent applications, and publications, are hereby incorporated in their entireties by reference.

While this invention has been described with an emphasis upon preferred embodiments, it will be obvious to those of ordinary skill in the art that variations of the preferred embodiments may be used and that it is intended that the invention may be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications encompassed within the spirit and scope of the invention as defined by the following claims.

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What is claimed is:

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- 1. A isolated or substantially purified nucleic acid encoding a protein comprising at least one domain of a T-type calcium channel o subunit.
- 5 2. The nucleic acid of claim 1, wherein said protein comprises an entire Ttype calcium channel a subunit.
 - 3. The nucleic acid of claim 2, wherein said protein comprises SEQ ID NO:13.
 - 4. The nucleic acid of any of claims 1-3, wherein said calcium channel begins to gate from about -60 mV to about -30 mV in 2 mM Ba31.
 - 5. The nucleic acid of any of claims 1-4, wherein said calcium channel exhibits a tail current of from about 1 ms to about 10 ms following repularization to a membrane potential from about -80 mV to about -60 mV in a solution with a bartum concentration of from about 10 mM to about 40 mM.
- 15 6. The nucleic acid of any of claims 1-5, wherein said calcium channel exhibits a single channel conductance of from about 4 pS to about 11 pS in a solution with a barium ion concentration of about 100 mM.
 - 7. An isolated or substantially purified nucleic acid hybridizing to the nucleic acid of any of claims 1-6.
- 20 8. An isolated or substantially purified nucleic acid hybridizing to the nucleic acid of claim 7.
 - 9. The nucleic acid of claim 8 comprising a sequence encoding at least one domain of a T-type calcium channel iz subunit.
 - 10. A vector comprising the nucleic acid of any of claims 1-9.
 - 11. A cell into which the vector of claim 10 has been introduced.
 - 12. The cell of claim 11, which expresses said nucleic acid to produce said protein.
 - 13. The cell of claim 11 or 12, which stably expresses said nucleic acid to produce said protein.
- 3/) 14. A population of cells consisting essentially of cells according to any of claims 11-13.
 - 15. An established cell line consisting essentially of cells according to any of claims 11-13.
- 16. A method of identifying a drug which affects T-type calcium channels. 35 said method comprising expressing a T-type calcium channel in a cell, exposing said cell to a putative drug, and measuring the calcium flux through the membrane of said cell in response to a change in membrane potential.

17. The method of claim 16, wherein said calcium flux is assayed by using a calcium-sensitive labile dve within said cell.

18. The method of claim 16, wherein said calcium flux is assayed by measuring the electrophysiological properties of said cell.

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- The method of claim 16, wherein said calcium channel comprises SEQ ID NO.13.
- 20. An isolated or substantially purified immunoglobulin recognizing an epitope on a T-type calcium channel protein.
 - 21. A cell in vitra which produces the immunoglobulin of claim 20.
- 22. An established cell line consisting essentially of cells according to claim 21.

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Fig.

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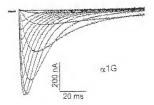


Figure 2A

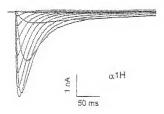


Figure 2B

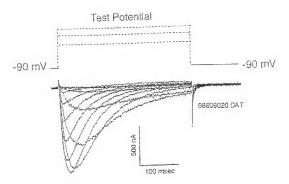


Figure 2C

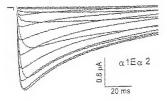


Figure 2D

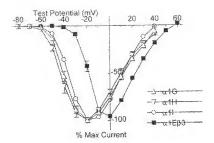


Figure 3A

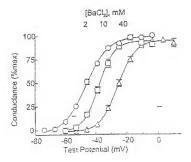


Figure 3B

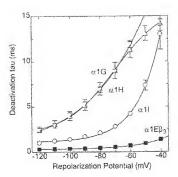


Figure 4

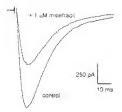


Figure 5A

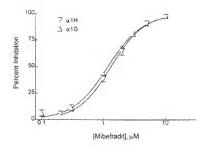


Figure 5B

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35	099 80 Arg Se	go tto	ang Met 20	Arg Cgg	ata Leu	aac Asn	gac Asp	atg Lea 25	tog Ser	999 Gly	gcc Ala	ggg Gly	30 6TA 888	yr.a caa	pro	96
40		79 999 79 999														144
43	Glu G.	gg ctg ly Leu SO														192
50		ng gan In Asp														240
55	oce to Pro T	gg ttt rp Phe	gag Glu	ege Arg 85	atc	age Ser	stg Net	ttq leu	gtc Val 90	atc	ctt læu	ctc	aac Aso	cgc Cys 95	grg Val	288
al al		Eg ggo Eu Gly														336
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13	tos Sec	get Ala	gtc Val	agg Arg 180	aca The	gt.c Val	ogt. Arg	gtg Val	ctg leu 185	Arg	820 608	Leu	agg Arg	gcc Ala 190	att	aac Asn	575
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w. 0.	cag Gln	ace Pec	cgc Arg 275	810 889	aac Ass	ggc	atg Met	ogg Arg 200	toc Ser	tge Cys	agá Arg	agc Ser	gtg Val 285	Pro	acg	otg Leo	864
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	ctg	gag Glu	996 93 y 356	tgg	gtc Val	gac Asp	atc	atg Mat 360	tac Tyr	ttt Pos	grq Val	atq Net	gat Asp 365	get. Ala	cet Ris	too	1104
60	rtc Ple	Toc Tyr 370	Asn	rre	acc	tao Tyr	tto Phe 375	ato 71e	ct.c Led	cto Les	ato	8tc 11e 380	Val	ggc Giy	toc	TEC Phe	1152
	220	arg	and	aac	cto	tạc	otg	g\$q	gtg	see	geo	ecg	csä	tto	tca	gaq	1200

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	Pho 385	Met	lle	Ash	Leu	0ys 390	Leu	Val	Vai	239	Ala 395	Thr	Gim	Plie	Sec	GEU 100	
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x 2	ege Arg	agg Arg 450	1,00	got Ala	caq Slo	gtr Val	tot San 455	ogg Arg	gca Ala	gca Ala	ggt Gly	ete Val 460	Arq cgg	gtr Val	999 61y	teu teu	1392
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30		pan Ris															1536
35		goc Ala															1584
22		aqa Azg 538														UTA aaa	1632
40		ecc															1680
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60	cca Fre 625	520	999 G19	Pro	tac	890 Sex 630	Sez	at q Met	Sis	eeq bys	Ctg Leu 635	ctq	gaq Glu	Thx	Caq Glo	agt Ser 640	1920
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	oto Leu 705	egg Arg	gac Asp	Pro	Cac	age Ser 715	Arg	Arg	caa Glo	ogg Arg	agc Sex 715	ctg	GJ y	eca Pro	дат Дэр	908 Ala 726	2160
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43	arc	ägc Ser	gtg Vaj	tgg Trp 820	gag Glu	atc	grş Val	gge	049 51n 825	cag Gln	ggg Gly	ggc	0j.y	eeg Lea	tog Ser	gtg Val	2496
50	etg læn	agg	300 Thr 835	one Phe	ege Arg	ctg	atg Met	cgt Arg 846	gta Val	otg Leu	aaq Lys	Leu	gtg Yal 845	Arg	ttc Phe	otg Leu	2544
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	919 - Val 865	gee	acc Thr	tts	tgo Cys	atg Mei 870	etg	ert Leu	alg Mot	ctc	ttc Pho 875	11.0	tto	ato	tro Phe	ago Ser 880	2640
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	āāā	gac	acc	org	cca	quo	្នេចខ្លង	eaq	266	7.7.7	gan	100	teg	cto	tgg	gec	2736

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	gcc Ala	att Tie	etg Leu	gre Val	989 619 965	gge Gly	ttc Phe	cag Gln	gcg Ala	gag G1u 970	GLY	gat Asp	gcc Ala	aac Asc	889 Lys 973	Sec Sec	2928
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	gcc ga Ala As		Glu					Lys					Arg			3648
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30	gac ac Asp Se 1345			Lys					Det:					Leu		4090
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55	ong gr Leu Va	d Val	989 610 1380	The	ctg Leu	atg Met	Sec	tca Ser 1385	LOS:A	aaa Lys	Pro	116	61y 1390	aac Asn	att lie	1175
60	gra gr Val Ve		Cys			208		116			Gly					4224
	cag ev	e etc	. સંસંસ	ggg	aag	ttt	tra	grg	rge	caq	qqc	gag	get	acc	ago	4273

	5%s into Pare Lys Gly Lys Rose Pro Val Cys Glo Sly 5%s Amp Tor Arg 1476 1425	
5	has ath acc oat see tog gav tot gor gap gor agt tac ogg tog gtr Asn lie Thr Asn Lyo Ser Asp Cie Ale Giu Ale Der Tyr Arg Trp Vel 1456 $$\rm 1435$	\$32 0
10	cgg GaC ang Eac SAC tit gac LeC cit ggs cag gcc city aig fice city hig fine Lye Tyr Ash Phe high Ash Leu fet Ser Lea 1449	4369
	tto gtt tig god too eas gat gor tag gig gan ato ang hao gah ggg Phe Val Lea Ala Ser Lys Asp Gly Trp Val Asp Ile Met Tyr Asp Gly 1460	441.6
15	big get git gig ggt git gac oag cag che att arg aac cac aac con Lee Xep Ala Val Gly Val Asp Glo Glo Pro lie Wet Aso Bis Aso Pro 1475 1480 1480 1485	9464
20	tgg atg skg sig tas the atv teg the skg oso atm gkg ges the tht Txp Noi Leu Leu Tyx Pha Lie Ser Phe Leu Leu 12e Val Ria Phe Phe 1495 1500	4512
25	oth tig aas aig LLI gig ggt ggt gig gt gap awn the care asg tgt Vai bea Aan Mer Phe Vol Giy Vai Vei Vai Glu Aen Phe His Lys Cys 1505 -1510	4560
30	cy; say cat cay gay gas dan dan occ coy cyg cyg gay dag ang cyc arg 61e Hie Gin Gin Gin Gin Ain Arg Arg Gin Gin Gin Lyz Arg 1975 $$	4603
35	DES 698 agu Ety Gag ees aag ags ags ag aag gag eag cag atg gct Leu Arg Arg teu Glu Lys Lys Arg Arg 9rr Lys Glu Lys Glu Met Ala 1549	4656
	gas gor ray tay as cor ray for the new factor early Ser Arg Phe Arg Leu 1935 $$1560$	4704
40	ets fin das das fig tge acc age cas tas sty gas ets tts ats aca Leu Val His Deu Cys Thr Ser His Tyr Leu haw Leu Phe lla Thr 1870 $$	4792
43	991 Sto ato 999 Ptg aso skq gto acc atg gym atg gag cap two cag Gly Val Tio Sly Leu Aen Val Vel Tir Het Ala Mer Glu Hio Tyr Gir 1580 $$ 1580 $$ 1590 $$ 1590 $$	4800
50	cag occ dag att stg gat gag get stg aag att tgg aan kan att fte Sin Pro Gin Iia Leu Asp Glu Ala Leu Lys Iie Cys Asm Tyr Ile Phe 1605 $$	4848
55	ect sto are tit sto tig was tea set its asa ett ste sec tit set ffir val lie bhe val leu Gin Ser val hun Lys Leo val Ala Rhe Giy 1620 1620.	4896
	NSC GQT MB the the cây gac agy tag are own by gac cty goc att. Fhe Arg Arg Phe Phe Gin Arg Arg Trp Arm Gin Leu Arp Leu Ala lle $^{1635}_{\odot}$	4944
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	sec ted etd occ ate ase een ate and end ege ate any agy grg org	5040

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10	gog org Ala Leu	otg gac Leu Asp 1700	acg gcg Thr Val	atg sag Met Glo	doc ctg Ala leu 1705	cor cag Pro Gin	gra ggg Val 61y 1710	sac ctg Ash Leu	5136
15	Giy Leu	ctt tto Leg Poe 1715	Btg ttg Met Les	ttg ttt Leu Pho 1720	Pre Ile	Phe Ala	gos otg Ala Leu 725	gge gte Gly Væi	5184
	gaq ctc Glu Leu 1730	ttt gga Phe Gly	gan ntg Asp Leu	gag tgt Glu Cys 1735	gac gag Asp 610	ace cac Thr Bis 1740	oce tgt Pro Dys	gag gọc Glu Gly	5232
20	ctq ggn Leo Gly 1345	ont cet	gec acc Ala Thr 1750	ttr ogg Phe Arg	Aco Phe	ggc atg Gly Met 1755	gcc ttc Ala Phe	cta ass Leo Thr 1760	5286
25	ctc ttc Lew Phe	cga gto Arg Val	see aca Ser Thr 1765	ggt gac Gly Asp	aat tgg Aso Trp 1770	aat ggc Ass Sly	lie Met	əəg gac Lys Asp 1775	5328
30			tgt gao Cys Asp	Gla Glu					5376
35	Ser Pro	arn tec The Tyr 1795	ttt gtg Phe Val	tee thu Ser Phe 1800	gig olg Val Leu	The Ala	dag tic Gin Phe 1805	gtg cta Val beo	5424
32	gtn aac Val Asm 1810	qtq qtq Val Val	and goo The Ala	gtg ctg Val Leu 1815	atg aag Met bys	cac ong Bis Leu 1820	gay gag Glu Glu	age aac Ser Asn	5472
40	ang gag Lyn Slo 1825	goo aag Ala Lys	909 909 615 616 1830	goo gag Ala Glu	Leu Glu	got gag Ala Glu 1835	ctg gag Lee Giu	ctg gag les Glo 1846	5520
45			ago coc Ser Pro 1845				Gly Sec		5568
<i>50</i>	cre tgg Leu Trp	oct ggg Pro Gly 1869	gtc gag Val Glu	Gly Pro	gac agc Asp Ser 1865	coc gao Pro Asp	ago coc Ser Pro 1870	aag oot Lys Pro	2616
55	Gly Ala	ctg cat Leu His 1875	cca grg Pro Ala	gos cad Ala Wis 1080	geg aga Ala Arg	Ser Ala	toc cad Ser His (885	tht too Phe Sec	5664
J.J	yea 615 yea 615 yea 635	His Fre	Thr Met	cag ode Gln Pro 1895	cac ece His Pro	acg gag Thr Olu 1900	ctg cca beu Pro	gga -cca Gly Pro	5712
60	ger tta Asp Leu 1905	ctg acr	gng cgg Val Arg 1910	Lys Ser	Sly Val	auc cya Ser Arg 1915	atg cec The His	tct ctg Ser Len 1920	5760
	ccc aar	gac ago	tac atg	tgt ogg	cat ggg	age act	geo gag	ggg ecc	5808

	Pac Aur	Sep Se	d Tyx 59 1925	81 C/S	ang	els ,	330 330	Sec	The	21.5	Giv	Gly 935	Pro	
	cte gga	22.3 273	2 0000 0		C.W. O	-00 20 To	107	20.20.00	22 (0.23	£133			WY 22	5956
3	Lan Gly	Has Be	g Gly T	an ana	1.89	Pro	Lys	Ala	Gir	Ser	GIV	Des	VAL	2000
		190				945					950			
	ttg tcc	ort ca	c con n	sp cca	aca	30.00	emm	600	180	acc	et e	cad	cer	3964
. 40	Leu Ser	Val Ha		In Pro	A1.5				Tyx	Ile				
10		1955			986				å	965				
	OCC 688	gat ge	a cct c	at etq	ete	caq	cce	cac	age	900	ana	acc	120	5953
	Fro Lys	Asp Al	a Pro 8		Leu	Sin	200			Als	Ero	34.5	Trp	
15	1970			1975				-	990					
	ggc acc													6000
	Gly Tbr 1985	Ile Fr	o bys i	en Pro	Pro	Pro	Gly	Arg	Sex	820	1.982		GIN	
	3 20 3		1 30	30			ě	1225					(099	
20	agg cca													6048
	Arg Pro	Leu Ar	9 Art 6 2005	in Ale	Ala		Arg	Thx	Asp	Sec		48p	Val	
			6.24.4			*	343							
23	caq ggt	259 99	c ego c	99 988	980	dtg	atg	goa	gag	gtg	894	999	odo	6096
60	Glo Gly	202	O har w	rg ww		1025	E-65.13	Min	G.LQ		2030	013	820	
	tac cag	000 00	9 900 8	da acc	tac	122.5	233	tgg	990	Cag	toa	agt	DOG MAGE	6144
30	501 210	2035	G 25.LG 75	ag risa	2040	\$250 X	30. 9 4 500	v + fx	w.y	045	A240 E	20.27	1313	
														(0.00)
	Cag tyce Glo Ale													6192
	2050	WEG GE		2055		,,,,,	A- C. A-		2060	W-10-4	470	11 11	ager ii	
35	of Name and Control	W 100 3 40 10								*****		***	A 40 A	6240
	Thr Pro	Pro Al	a Pro C	de cen	GIV	5x0	Gla	Pro	Asn	Tro	Gly	Lys	Gly	0%60
	2065		20	70			- 3	2075					0805	
40	con coa	gag ac	C 808 8	ac ∾	tta	dad	tito	wec.	800	989	ctu	abc	too	6288
	Pro Ero		x Arg S			Giu	Lesi				Leu	Sec		
			2085			3	2098					2095		
	att toa	gga ga	e etc e	tg ccc	222	gge	gga	cag	gag	gag	ccc	57538	2222	6336
45	Tle Ser	Gly As	p Lev 1	eu Pro	Pro	GIY	Gly	eju	Glu	Glo	Pro	Pro	Sex	
		210	v		4	2105				,	2110			
	oca ogg Pro Arg	gac ct	g aag a	ag tgc	tac	age	geg	gag	gee	caş	age	tge	cag	638
50	Pro Arg	Asp La 2115	a Lys 1	уя Сук	Tyr 2120	Sex	Val	Gla	Ala.	Gln 125	Ser	Cys	Gin	
50		6111			6363				,	12.3				
	ēgo oğg	oct ac	g tee t	gg etg	gat	gog	cag	999	aga	cac	101	arc	gee	6433
	Arg Arg 2130	840 At	a nex 3	2135 Zp	yak:	GJA	GIN		2140	His	26%	116	ALG	
55				42.44										
	grc 890	tgo of	g qac a	de don	866	055	ccc	cac	ceq	ddc	aca	980	cocc	6489
	. Val Ser 2145	CAR PE		.59	ser	GIN		2155	7000	ted y	Tut		2160	
00														
60	Ser Asn													6529
	10 C (101)	· wests fad	2165	x 210	simil		2170	610	ory	Lores		2175	217.0	
	000 000	000 86	te ends t	eet agr	65.0	acc	ata	gac	cee	200	gaq	960	Cas	6578

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	Lys Ly	5		\$41 1180	#x12	Pro	ánn		Tor	II?	Aag	Pho		311k 2196	Sex	Gin	
5	qut co Giy Fr	63					Ser					21811					6624
10	eeg so Pro Se 22	2.0				Lys					5er						6872
15	atg qo Mer Al 2225				820					ABD					Ser		6720
* 2	tta tr Leo Se			Asp					Asp								6750
20	<210> <211> <212> <213>	67 DN	a	apie	ans.												
25	<223> <223>			(678)	3)												
30	< 100 > atg g Met A	3.25	949 Glu	gag Giu	gag Glu S	gat Asp	gga Gly	gog Als	Gly	gec Ala 10	989	gag Slu	tog Ser	G1A ads	caq Gln 15	ecc Pro	48
3 <i>5</i>	ogg a Arg S																98
40	999 c	og ro	999 619 35	toa Ser	gca Ala	Gl u Gl u	aag Lys	986 889 40	Pro	GI y	ago Ser	geg Ala	gae Asp 45	tea	gaq Glu	gcq Als	144
45	gag g Glu G																192
30	ago c Ser G 65	aq ln	gac Asp	ag¢ Ser	arg	eeg Fro	egg Arg	age Ser	tgg Trp	tgt Cys	Leu 75	Arg	acg	gta Val	Egs Cys	asc Asn 80	246
	Pro T																388
33	acc c																336
60	aga t Arg C								Asp								384

gen and gag and gra gra and and gra gen and att the gra and 432. Also Val Glu Met Val Val Lya Met Val Alo Leu Gly Lie Phe Gly Lya

		130					135					140					
j	aag uys 145	tgt Cys	Tyr	otg Leu	01 y 993	gac Asp 150	act The	tog Trp	aac Asn	ogg årg	ctt Leu 199	gac Asp	ttt Phe	tito Phy	arc fie	321 Val 160	480
10	atc	gca Ala	81 A 888	atg Net	ctg Leu 165	gag Glu	eac Tyr	t.cg Ser	otg Leu	gan Asp 176	beu Leu	eag Gin	aac Asn	geo Val	890 86 <i>c</i> 175	5 5 C 6 PP#	528
10													agg Arg				576
15													ctg Leu 205				624
20	000 Pro	atg Met 210	otg Leu	ggc Gly	aac Asn	gtc Val	ctg Len 215	ctg	etc bev	tgo Cys	tto Fhe	ttc Pho 220	gto Val	ttc Phe	ttc Phe	atc 11e	672
23	tto Pee 225	Gly	atc	gtc Val	gly gly	gte Val 230	caq Gln	etg Leu	tgg	gca Ala	999 919 235	atg Leu	ctr Leu	cgg Arg	aac. Aan	290 290	720
30	Cys	t tm Pno	eta Leu	ect Pro	gag 61u 245	aet Asn	ttc	Ser sec	otó Leu	000 910 250	etg læu	961 168	gtg Val	geo Asp	ctg Lea 255	Glu	768
~ ~	age	tat Tyr	tac	089 61n 268	eca Thr	gag Glu	aac Aan	gag 61u	gat Asp 265	gaq Glu	ago Ser	ede Pro	ito Phe	9tc 11e 270	tge Cys	sec Ser	316
35	Cag Gla	Pro	ege Arg 275	gaq Glu	wac Asn	gly	atg Met	egg Arg 280	too	tgc Cys	Arg	agć Ser	gtg Val 285	Pro	acg Tha	ctg	864
40	ogo Arg	890 614 888	gar Asp	Gl y ggq	gge Gly	ggt Gly	ggc Gly 295	oca Pro	ost	tąc Cys	ggt Gly	ceg Leu 300	gac Asp	tot Tyr	gag Glu	gcc Ala	915
45	tar Tyr 305	Asti	age	tec	agc Ser	aac Asn 310	acc	acc	tgt. Cys	gt& Val	aac Asn 315	tgg Trp	Asn	cag Gln	tac Tyr	tar Tyr 320	960
50	acc Thr	asc	tga Cys	get get	gcg Ala 325	GLY	Gla	eac His	aac Asn	000 fro 330	tto	aag Lys	Giy	gcc Ala	atc Ile 335	aac Asn	1008
	err	gac Asp	Asn	att Tle 340	GLY	tat Tyr	goo	tgg	ata Idr 345	gge Ala	aic 11s	The	Cag	gto Val 350	ato	acq The	1056
55	ctg Leo	gag Glu	ggc G1y 355	tgg	gto Val	gac Asp	ato	arg Met 360	Tyx	ttt Phe	grg	arq	gat Asp 360	got Ala	ost Nis	soc Ser	1104
60	tto	tac Tyr 370	aat. Aan	Phe	arc	tac Tyr	ttc Phe 375	lle	sto	ete Leu	etc Ile	atc 119 380	gtg Val	gga Gly	ton Ser	tro	1192
	tto	atg Met	ato	aac Asri	ctg Leu	tgo Cys	utq Leu	gt g Val	did Asj	att	gee Ale	acq Thr	cag Gin	ttc	tca Ser	Glu	1290

	385					350					395					400	
2	acc	aaq bys	caq Gin	ogg Arg	958 Glu 495	ago Set	cag Gin	ctg bes	at.g Net	409 A19 415	qaq Glb	cag Gin	og: Arg	gtg Vai	ogg Arg 415	tts Pne	1349
10																cha	1235
3 50	rat	989 61u	989 Glu 435	ctq	ete leu	aag	cac Tyx	00g 180 440	gtg Val	tac Tyr	atc lie	ert Lau	cgt Arg 445	aag Lya	gca Ala	gee Ala	1344
15	yrd	#99 8x9 450	chig Leu	gci Ala	cag Gln	gto Val	tet Ser 455	egg	gca Ala	gca Ala	ggt	gtg Vai 460	egg	gtt Val	999 Gly	ctg Leu	1392
20															age Ser	ago Sec 480	1440
25															919 Val 495		1488
30	cac His	cac Blas	080 818	cac Wis 300	cat His	cac His	cac His	cac	tac Tyr 505	cec His	crg Leu	ggc Gly	eet. Asn	919 919	acg Thr	ore Leu	1536
	agg Arg	gee Ala	9re 515	Arg cgg	gge Ala	ago Ser	cog Pro	9ag Glu 520	atc lie	cag Gln	gas Asp	agg Arg	gat Asp 525	goo Ala	aat Asn	ÇÎY GGG	1564
35															toc Ser		1632
40	gcc Ala 545	ecc Pro	est Pro	ggs Gly	gge Gly	goa Ala 550	gäg Glu	tot Ser	yei gtg	cac His	890 Ser 555	rra	tác Tyr	cat His	gce Ala	gac Asp 566	1680
43	Cys Cys	O&C Wis	tta Leu	gag Glu	oca Pro 565	gtc Val	oqe Arg	ego Cys	cag Glx:	gcg Ala 570	Prn	Pro	Pro	ago Arg	too Ser 575	cea Pro	1728
50	tet. Ser	gag Glu	gos Ala	Ser 580	ggc	agg Ang	act Thr	gtg Val	ggc Gly 885	age Ser	ggg Gly	aag Lys	gtg Vál	tat Tyx 530	oca Pro	anc Thr	1776
	gtğ Vat	Can His	ann Thr 595	ago Ser	ect	200	ccg	gag 01u 600	acg Thr	esg	aag Lys	gag Glu	449 Lys 605	gca Ala	eta Leu	gta Val	1824
55	gag Glu	gtg Val 610	get. Ala	gac Ala	age Ser	tok Ser	999 Giy 615	Pro	eca Pro	acc Thr	ote	acc Thr 620	agc Ser	otc beu	aac Asn	atc lle	1872
60	008 Pro 625	Pro	61 Å 888	Pro	ras	ags Ser 636	ser	arg	cac Bis	aag Lys	etg Leo 685	2.000	gaq	aca The	Cag G.in	agt Ser 640	1920
	aca Thr	ggt Gly	gue Ala	t go Cys	Caa Gln	ago Ser	tot Ser	090 098	asg Lys	atc 11e	tcc Ser	ağc Ser	ect	c ge	tig	aaa Lys	1968

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					645					650					655		
3	SCA Ale	gac	agt. Sex	99a 91y 665	gcc Rla	cgr Cys	gg: Gly	500 Pf6	965 Ask 665	eps Ses	t go Cys	pro	tac	tgt Cya 676	goc Alá	Arg Arg	2016
10	gco Ala	ggg	qea &1a 675	ggg Gly	gag Olu	gtg Val	gaq Glo	050 Leu 680	gos Ale	980 \$80	egt Arg	gaa Glu	atg Met 685	ect Pro	gac Asp	t.ca Ser	2064
10									aca Tax								2112
13									caa Gla								2160
20	989 91s	eac Pro	age Ser	tet Sex	gtg Val 725	ctg Leu	goo Ala	eto Pbe	tgq Trp	agg Arg 730	ote Leu	atc 11e	tgt Cys	gac Asp	acc Thr 735	kto Phe	2298
25									ttt Pne 745								2256
30									gge. Giy								2304
30									atc								2352
33									aag Lys								2400
40									asc								2448
45									cag @1n 825								2496
50	otg Leu	ogg Arg	800 Thr 835	ttc Phe	Arg	ctq	atg Met	ogt Arg 840	gtg Val	ctg Leu	aag Lyg	ctq	gtg Val. 845	arq	tte Phe	arg Leu	2544
20	6x0	979 Ala 855	Leu	cag Gln	egg	cag Gln	ctq Leo 855	grg grg	grq Val	orc	arg	889 Lys 860	acc	atg Met	gac Asp	aac aan	2592
35		Ala							atg Mer							agc Ser	2640
60						560			t.dc Cys		23.9					gst. Asp	2688
																goc Ala	2736

				300					905					310			
ij	etc lim	gtc Val	act Thr 915	gtc Val	tt: Sns	oaq 61n	ato Tie	0Eq Leo 920	acc Thr	cag Gin	gaş Giyu	gat Asp	tgg Trp 925	aac Aan	aaa Lye	pet Vai	2784
2.0	isu	196 198 930	asr Ass	ggt Gly	atg Mer	gcc Ala	tos Ser 935	acq Thr	tog Sex	too Sez	rgg Trp	geg Ala 940	goc Ala	ctt Leo	tat. Tyt	tro Phe	2832
.10	att														ctq		2880
13															aaq Lys 971		2928
20															6) À 844		2976
25	Arg			Cys			Let					Glu			gag Glu		3024
30	Arg	aaq Lys 1010	Sec	old Leu	ctg Lea	Pro	oot Pro 1015	ota Leu	ato	ato Tle	His	acg Thr 1020	gcc Ala	yya dog	aca Tor	5x0 ccc	3072
,,0	atg	Ser	čtg Leu	Pro	%y3	agc Ser 1030	acc	agc Ser	acg	Say	stq Leu 1035	618 618	gag Slu	gog Ala	ct.g Leu	ggs Gly LO40	3120
33				Arg					Ser					Pro	999 61 y 1055		3168
40			G) n		Lys			Pro					Ser		cac His		3216
45	880	Ter		Ala			Ser					Aro			eqq Arg		3264
56	Sex		Gly			Pro					Arg				gga Gly		3312
30	egg	Arg	toc	ctg Leb	Leu	tog Set 1110	Gly	gaa Glu	gi3 aac	93.6	gaq 614 1115	Ser	cag Gln	gat Asp	gaa Glu	gaq Glu 1120	3360
3.5		ago Ser	tca Ser	G.232	929 910 920	Glu	ogg	goo Ala	Sec	oct Pro 1130	Ala	gg y	agt Ser	Asp	car Wis 1135	oge Arg	3408
61.			Gly		Len			Glo		1.98			Phe		org Leu		3456
															Cg4	ggg Gly	3804

	1188	2260	1168	
ŝ	tot get tot gag : Ger Ala Ser Slu 1 1170	bac cad gen Lyc : Mie Slu Asp Cys : 1175	aat ggc aag t0g gct toa gog c Aen Gly bys Say Ala Ser Gly # 1180	oga 3552 Nag
10	ctg god ogg god (kmu Ala Arg Ala) ll%5	ctg cyg cot gat : Leo Arg Pro Asp : 1198	gan one nee eng gat ggg gat (Aap bio bro bes Asp Gly Asp b 1195	gac 3600 Asp 700
210	gor gat gas gag s Ala Asp Asp Glu G	ggo aac otg ago Gly Asn Lau Ser : 205	aaa ggg gaa ogg gto ogo gog t Lys Sly Slo Arg Val Arg Ala 1 1210 1215	год 3648 Гер
15	ato oga got nga i 116 Arg Ala Arg 1 1220	Leu Fro Ala Cys :	tgo oto gag oga gan ton tgg : Cys Leu Giu Arg Asp Ser Trp : 225 - 1230	cca 3696 Ser
20	gon two etc tto : Als Tyr lie Phe ! 1235	oct oct cag too . Pro Pro Gle Ser . 1240	agg lie ogo ete etg tgt cac « Årg Bhe Ærg ben Leu Cys Ris 1 1249	ogg 3744 Arg
25	ate ate ase cae . The The The Bis ! 1250	aag atg tto gac Lye Met Phe Asp : 1235	cac gig gir nir gic atc atc : Ris Val Vai Lau Val lie lie ! 1260	rto 3792 Phe
3 Q			gag ogs tot aaa att gan con : Glu Arg Pro Lys Ile Asp Pro ! 1275 17	
<i>→</i> 10	Ser Ala Glu Arg		ctc toc ast tad atc tto acc. Lon Ser Asn Tyr Ile Phe Thr : 1290 1295	
35	gto tit oig got : Val Phe Leu Ala : 1390	Gla Mer Thr Val	asg gig gig goa cig goo tog : Lys Val Val Ala Lea Gly Trp : 305 1310	tgo 3994 Cya
4(i	tto ggg gag cag Phr Gly Glu Gln : 1915	geg tac etg çgg Ala Tyr Leu Arg 1320	age agt tog aso gtg etg gac Ser Ser Trp Asn Val Leu Asp 1325	ggg 3984 Gly
45	org ttg gtg ctc Lou Leo Val Leu 1330	eto toc gto eto Ile Ser Val lle 1335	gat att etg gig tod atg gic : Asp Ile Lau Val Ser Met Vil : 1940	tot 403% Ser
50	gac age ggc acc Asp Ser Gly Thr 1345	aag att ctg ggr bys lle Leo Gly 1350	ang mig agg gig mig mag mig : Men Lou Arg Val Leu Arg Leu . 1355 1	ctg 4085 Leu 360
ψ. C7	Arg Thr Leu Arg	ccq ctc egg gtg Pro læu Arg Val 365	ato ago ego ego eag goo etg The Ser Aro Ala Gim Gly Leu : 1370 1379	aag 4128 bys
<i>55</i>		The Leu Met Ser	tce ctg ass coc stc ggc 660 Ser lew Lys Pro Tie Gly Ase 385 1390	
60			ato att sto ogo att tig god lie lie Phe Gly lie Leo Gly 1405	
	cag stairt ass Gin Leu Phe Lys	ggg ang tit tic Gly Lys Pho Pho	gig igo dag ggo gag gat acc Val Cys Sic Gly Sic Asp Ta:	agg 4272 Arg

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	1410				3	415				ã	420					
ś	Aso lie 1425	acc fnr	aat a Asn i	.ya	tog Ser. 430	gac Asp	tgt Cys	gec	Q3 u	god Ala 435	egt. Ser	tac Tyr	Arg Cgg	Trp	gts Val 440	4320
	egg dae Arg Bis		Tys &					Len					Net.			4368
10	tic grr Phe Val	Sept.	gco : Ala 8 460	oc ler	aag Lys	gai Asp	Gly	toa	ara	gac Asp	atn Ile	Me t	tar Tyr 470	gát Asp	999 Giy	4436
13	ccg ges Leu Asp	get Ala 1475	gtg ç Val 6	ge	gtg Val	Asp	cag Gin 480	¢ag Gin	eve Pro	att	28/25	aac Asn (485	çac Hia	aac Aso	eec Pro	4464
20	tgg and Tip Ben 1490	Leu	Leu T	yr	Phe	11e 495	Sec	Pite	Leu	Leu 1	116 500	Vai	Ala	209	Pae	4517
25	gtc cta Val Leu 1505	Asc Asc	atg : Met F	tt the	gtg Val 510	ggt Gly	gtg Val	grg	grg Val	gaq Glu 515	aac Ass	988 888	cac Sis	aag bys i	tgt Cys 520	4560
30	agg mag Arg Gin	Ris	Glin G)25	Glu	gag Glo	gag Glu	Ala.	ogg Arg 530	yrd	ytd	Glu Glu	G1 52	aaq Lys (935	age Arg	4608
	eta ega Lau Arg	Arg					Arg					1.00				4656
35	att got Ile Ala	tee Ser 1555	gly s	agc dex	t da Sez	Aia	agc Ser L560	get Ala	gcg Ala	t ca Ser	Gla	gcc Ala 1565	caq Gin	tqn Cys	ass Lys	4704
40	cet tac Pro Tyz 1570	Tys			Tyr					Lou						4752
43	ton acc Cys Thr 1585	age Ser	Ged 1	Pyr	arg Leu 590	gac Asp	otc let	ttc Phe	lle	aca Thr 1595	81 Å ååt	gto Val	ato Tle	GLy	erg Leu 1600	4800
50	amo grg Amm Val		Thr 8					81.5					Qitn			4898
	gat gag Asp Glo	Ala	ong a Leu 3 .620	rad rad	atic 11¢	tge Cys	Aso	Tyr 1625	atc Tie	phe	The	Yel	atc 11e 1630	ttt Phe	gtc Val	4896
žž.		Set 1635	Val 1	Phe	paa	Leu	Val 1648	Ala	Phe	Gly	fina	Arg 1645	Arg	Phe	Phe	4944
60	Glu Aup 1650	Arg	tag : Trp :	asc Ass	cao Glo	otq 168 1655	gac Asp	etq Lan	gcc Ala	ne	gtg Val 1660	ctg Leu	Les	Ser.	ato lle	4992
	arg ggo Mat Gly	atc lle	acq o	ctg	gag Glu	gaa Giq	atc	gag Glu	gte Või	aac Asn	gec Ala	tog	ctg Leu	Prin ccc	arc	5040

17 1663 1670 3818 1680 add one act and one one and and and and one one one one off 1988 Ash Pro Thr lie lie Arg lie Met Arg Val Leb Arg lie Ale Arg Val ong dag ong ong ang ang get gry gge ang ogg gen ong eng gas aeg 5136 Les bys bes bes bes bys Met Ale Vai Gly Met Ary Ala Les bes Asp Thr gig ang mag gor dig dod dag gig agg amo dig ggm ett die tie aig Val Mer Gln Alm leu Pro Gln Val Gly Men Leu Gly Leu Leu Phe Ner 5184 1756 ttg ttg tti tto ato tee gew get eng gae gtg gag ete ttt ggw gae Lau Lau Pha Phe ile Pha Ala Ala Leu Cly Val Giu Leu Pha Gly Asp 5232 ong gag ngh gan gag aca can onn tyt gag gyd nig ggn ogl cat gon Leu Glu Cya Asp Glu The Bis Pro Cya Glu Gly Leu Gly Ang His Ala 5230 1745 acc itt ogg sac til ggc atg gno tto ena acc cto tte oga gto the The Phe Arg Aso Phe Gly Met Als Phe Leu The Lou Phe Arg Val Sec eca gut gas ant the set egs att ate and has see see ste one gas tet 5376 The Gly Asp Ash Trp Ash Gly Ile Met Lys Asp The Leu Arg Asp Cys 1780 30 gad day gag for ecc tgc tad asp adg gtd atd tog sot atd tad tit Amp Gin Glo Ser Thr Cys Tyr Amb Thr Val Ile Sar Pro Ile Tyr Phe 1795 gtg too tto gtg org acg gte eag tre gtg era gto aac gtg gtg atm Val Ser Phe Val Leu Thr Ala Gin Phe Val Leo Val Ash Val Val Ile 5472 1810 1815 1850 por gry cty atg mag car ong gag gag ago sac amg gag goo aag gag Ala Val Leu Met Lys Sis Leu Glu Glu Ber Asn Lys Glu Ala Lys Glu gas gan gad ora gag got gag ong gag ong gag ang ang anc one age Gla Ale Glu Lev Gia Ala Gla Leu Glu Leu Glu Met Lys Thr Leu Ser 43 1225 1850 coc cag cor can beg one ong ggo ago one the etc igg out ggg gis 9616 Pro Gin Pro Bis Ser Pro Leu Gly Ser Pro Phe Leu Trp Pro Gly Val 1865 50 qaq qqc ccc qac age ccc gac age ccc aag tct qqq gct ctt tat cca 5654 Glu Gly Pro Asp Ser Pro Asp Ser Pro Lyn Pro Gly Ala Leu His Pro 1880 309 900 080 gog age twa gnn ton oee tit ton otg gag ost one any 5712 Ala Ala Wis Ala Arg Ser Ala Ser His Pho Ser Lou Glo Sis Pro Thr ate cae one cae con any gay sty cos gos cos gan the sty sor gro

Met Glo Fro His Pro Thr Glu Lea Pro Gly Pro Asp Lea Lea Thr Val

cyg aag tot ggg gtc ago cyb acg cac rot old occ ast gac ago tac 5808 Arg bys Ser Gly Val Ser Arg Thr Ris Ser Leu Pro Asn Asp Ser Tyr

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3	er.g Not	ngt Cys	697 Azg	cat Nis 1980	917 933	ago Sex	act Thy	pot Nia	gag Gin 1945	999 61 y	0.00 Pro	oty	gly gg-s	cac Ris 1956	agy	gge gge	20
	tyg Tre	637	eve impa 1955	occ Pro	944 944	gct. Ala	Gla	coa Ser 1960	Gly	toc 9er	grc Val	1,612	roc 5er 1965	git Val	oac His	rec Ser	S
10	Gin	eca Pro 1970	ALL	gat Asp	son Tör	Ser	two Tyr 1975	ato	ctq Leu	Gag Gl7s	isu	220 220 220	aaa	gau	gca Ala	oot Pro	9
15	cat His 1981	Lend	Leu	Cag	Pro	nac His 1990	ago Sez	poc Als	oca Pro	acc. The	rgg Trp 1995	gge Gly	acc Thr	atc Ile	Pro	aaa Lys 2000	(
20	ctg Leu	ecc Pro	oos Pro	8'5'G	gga Gly 2005	ege Arg	ter Ser	ect. Pro	2,4953	gct Ala 2016	eag Glo	agg Arg	608 608	Leve	agg Arg 2015	Ww.d	6
25	caq Glo	QCa Ala	Ala	ata 11e 2020	Arg	aos The	gac Asp	Ser	tig Leu 2025	gac Asp	gtt Val	cag Glo	Gly	otg Leu 2030	Giy	agc Sec	6
30	Arg	Qu	gac Asp 2035	ctg	ctq Leo	gos	913	gtq Val 2040	agt Sez	990 Gly	dee Pto	Ser	oog Pro 2045	Pro	rea	gec Ala	4
30	Arg	gcc Ala 2050	TYX	tot Sér	tte	Trp	ggc Gly 2055	cag Gln	tca Ser	egt Ser	Thr	2060 6)s	Ala	cag Glo	cag G1n	cac Bls	6
35		Axg			Sec					esc His					838		É
40				850		Pro			Gly	aaq Lys 2090				Gitu			*
45	agn Ser	agc Ser	Leu	gaq Glu 2100	Leu	gac Asp	acq The	Glu	etg Leu 2105	agc Ser	tgg 7rp	att Tie	Ser	gga Gly 2110	gac Asp	cto Leu	8
50		Pro		Gly			Glu		Pro	eca Pro		Pro				aag Lys	•
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100	aaq Lys 2225	220	910	trg Leu	Ala	sat Sar 2233	gly ggc	510 000	920	ASD	age Sez 235	ata Nat	go: Ala	900 Ale	305	000 920 9240	6720
15	to: Ser	008 980	aeg Lys	1,48	yat Asp 2245	gtg Val	ctg Leu	bgt Ser	1.00	ccc Smr (250	01 h ddr	tea Lau	29.0 200	500	gac Asp 2255	008 870	8756
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40	ogg Arg	açc Ser	rte	atg Met 20	egg Arg	oto ies	asc Asc	gac Asp	erg Leu 25	tog Ser	elà aad	goc Ala	ggg Gly	30 30	ngg Arg	ero	96
45	999 617	ècg Pro	999 Gly 35	Ser	gca Ala	gaa Glu	aag Lys	gac Asp 40	pos pro	ggo	ger	gcg Ala	gat Asp 45	tre	Glu	Ala	144
7.0	gag Glu	999 Gly 50	otg	820	tac	acq	gcg Ala 55	Ctg	goe Ala	Sto	grg Val	gtt Val 60	nno Phe	tro Phe	two Tyr	ttg Leu	192
50	ago Ser 63	caq 6ln	qsc Asp	agc Ser	ogo Arg	00g Pro 70	ogg Arg	agc Ser	tgg	tgt: Cys	ere Leu 75	age	acq	val	tgt Cys	Asn 80	240
35	ecc Pro	rgg	ttt Phe	gag	000 Arg 85	ato	agc Sec	atq Met	ttg	yal yal	atc	ett Leu	aca Lea	aac	cgo Cya 95	gog Val	288
60	acc Thr	cog Lep	919	Stg Met 100	Pos	626	aca Pro	ngo Cys	gag Glu 105	gas Asp	att	gar Ala	cys	gac Asp 110	occ Sar	cag Gin	336
	aga Azg	Ego Cys	549 115	ate	ccq	daq	god Ala	ett Ene 135	qat Abp	gac Asp	Phe	ats 11-	Don Phe	916	EEC Phe	e.ca Phe	384

pcc Ala	gtq Val 130	geg Glu	alig Mail	ştş Val	919 Val	aag Lya 133	atq Met	919 Val	gos Ma	119 186	397 519	116	ete Pha	91; 91;	aaa Lys	333
aaq Lys 145	tigt Cya	tar Tyc	otg Læd	gga Gly	gac 230 150	act To:	126	aac Aso	099 Arly	011 Lenu 195	981 Asp	177	eno Phe	atc Tie	gée Val 160	480
atc	gca Als	999 Siy	ang Met	oiq Leu 165	gag Glo	tac Tyr	tty Sec	ong Leo	gac Asp 176	ceş Leu	cag Sla	aac Ass	AFT	4gc 96: 175	ttc Phe	528
čoa Ser	get Ala	ges Val	agg Arg 180	aca thr	gto Val	ogt Arg	gtg Val	ocq Lau 185	yid ods	eeg Pro	ren	Arg agg	900 Ala 190	att 11e	eec Aen	376
																634
220	atg Met 210	cog Leu	gra ggc	aac Asn	gtc Val	1.24	580	oto Leu	ego Cys	tto Phe	suo She 220	gtc Vai	tto	tto Phs	atc Ile	670
ttc Phe 225	el X ååc	ato	gro Val	qqc Gly	qtc Val 230	cag Gln	ctg Løu	tgg	gca Ala	979 Gly 235	ctq Leu	ont Leu	egg Arg	aac Asn	cga Arg 240	720
tgc Cys	ttc Phe	cta Wou	cct Pro	gag Glu 245	aat Asn	bto Phe	ago Ser	ess ಕ್ಷಾ	000 Pro 230	CEG Leu	agc Sac	gtg Val	gas Asp	arg Leu 255	gag Glu	768
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ega	999 819 290	Asp	999 G1y	Gly	GTA dar	GLy	820	ect	tgo	ggt	Leu	Asp	tat Tyr	gag Glu	gcc	912
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acc Tha	aac Asn	tgc Cys	tca Ser	909 Ala 325	gly	Glu	His	aac Asn	ecc Pro 330	tto Phe	Lys	gg: Gly	gee	335 335	asc Asc	1008
				Gily				ile	Als				Val	Ile		1958
atq iqu	gag Glu	Gly	Tep	gno Vai	gac Asp	atc Ile	Mar	1.7.2	tt: Phe	gtg Val	aug Mei	3.55	ALa	cat Nas	to: Sex	1104
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	erc Phe 385	803 (497	acc Tle	sat Asc	cog Leu	390 CA# eds.	obg Leu	91.9 93.1	etg Val	att 11e	900 Ala 395	303 Tt:	oaq Glo	ine Pne	ser	949 Glu 600	1200
3	acc The	aag Lys	cag Gin	egg Arg	983 010 405	agu Ser	caq Clc	ong Leu	arg Mer	099 Asg 419	gag Glu	cag Gin	ogt Arg	979 7al	299 209 415	tito File	1248
10	Leu	toe Sat	880 898	goc Ala 420	agc Ser	acc Thr	atg Lea	gat Als	aga Ser 425	tic Pho	tot Ser	G) a	000 Pro	930 930	ago Ser	tgd Cys	1296
15	tat Tyr	gag Glu	gaq Glv 435	ceg Leu	otc Leu	PAZ P9Ž	tec Tyr	orq Leo 440	621	tac Tyr	atc Lie	ctt Leu	090 Arg 445	aaq Lys	908 A18	god Ala	0.344
20	aga Ang	agg Arg 450	ceg beu	got Ala	cag Glo	gne Val	tot Ser 435	Arg	gca Ala	qea Ala	ggt Gly	gtg Val 450	ogg Arg	gt.t Val	Gly GGG	ctg Lau	1392
23	610 160 465	agc Ser	agc Ser	oca Pro	gça Ala	004 Pzo 479	atc Leu	999 619	Giy	cag Gln	gag Glu 475	acc	cag Glo	000 FE6	agc	agc Ser 480	1440
23	agc Ser	ege Cys	tet Ser	ege årg	toc Ser 485	cac His	grg	Arg	cta Leu	200 Ses 490	Val Val	osc His	cac Mis	ctg Leu	gtq Val 495		1489
30	cac	cac	cac Ris	cac 818 500	car Ris	cac Ris	cac His	cac His	rac Tyr 503	cac His	ctg Lea	ggc Gly	aat Ass	gqq Giy 510	acg	ctc Leu	1536
35	Yrd	gcc Ala	900 Pro 515	ogg Arg	gno Ala	ger	eng	gag Glu 520	atc Ile	reg Gln	gac Asp	agg Arg	gat Asp 525	gcc Ala	nat Aso	61Å 488	1584
40	tec Ser	ngc Ang 530	Azg	ctc	arg Mer	crg	008 F20 535	cca Pro	820 820	Ser	acg The	oot Pro 540	gec Als	ctc	tec	Gly	1632
43	gcc Ala 545	Sto	700 028	Giy	ggc	gca Ala 550	gag Glu	tet	grg Val	cac His	agc Ser 555	tto	tac Tyr	cat His	gcc Ala	gas Asp 550	1680
43	Cys	cac His	tta Leu	Glu	cca Pro S6S	Val	aga	t gö Cys	caq Çin	909 Ala 570	850	Pro	200 P20	agg	ser 575	eca Pro	1728
30	tot Sez	gag	gca Ala	t.cc 3er 580	Giy	Arg	act	gug Val	ggs Gly 585	Sex	Gly	aag Lys	gtq Val	tat Tyr 590	800	acc Thr	1776
55	gtg Val	cac 8is	The 595	ago Ser	ect	eca	ecq	949 010 600	Thr	ctg Leu	adg Lys	gag Glu	Lys 605	gea Ala	cra Leu	gts Val	1824
60	gag Glu	grg Vei 610	Ala	goo	agn Sec	ser	999 613	800	Pro CC4	adc Thr	Ctc	acc Thr 620	25.5	Lev	Asc Asc	atc	1873
	008 900 625	Fre	ggg Gly	620 660	tac Tyr	990 991 630	504	Met Met	cas Wis	aag Lys	000 140 635	3450	gag Glo	The	- Gle	891 Ser 640	1900

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### 186 agg gag gas ght tat gag the most cag gat jmm only can agg gad. ### 187 agg ser @in Alm Val Tyr Giu Phe Thr Gin Ang Alm Gir His Set Asp 769	10	gcc Ala	di A aaa	goa Ala 875		gag Glu	gtg Val	gag Glu	ote Leu 680		ga c Asp	ngt Atq	984 619	acy Mat 685		gas Asp	tca Ser	2564
Leu Atg Asp Pro Sis Ser Atg Arg Cln Arg Ser Leu Gly Pro Asp Als 705 705 705 705 705 705 705 705 705 705	15	gac Asp	Ser	gag	gea Ala	get Val	tat Tyr	Giu	ese	aca Thr	cag Gin	gat. Asp	AlB	G3:c	oac Vis	agr Sec	gac Asp	2113
Giv Pro Ser Ber Val Len Ala Phm Tro Arg Leu Ile Cys Aso Thr Phm 725 23 cqs and ett du gao eqc and tac tit ggo egg ggs atc atg atc gcc Arg Lys Ile Val Asp Ser Lys Tyr Phe file yard Gly Ile Met Ile Ala 750 30 atc ctg gtc am ac aca ctc age atg ggc atc gam tac cac gag cag ccc Ils Leu Val Ash Thr Leu Ser Met Gly Ile Glu Tyr His Glu Gln Pro 755 30 gag gag ctt acc sac gcc ctm gam atc agc and acc cac gag cag ccc 1352 31 gag gag ctt acc sac gcc ctm gam atc agc and acc cac gag cag ccc 1352 32 ctc ttt gcc ctg gag atg ctg ctg and ctg ctg ttg tat gat now ttl gcc ctg gam atc ccc tac gam acc ttc gam acc ttr gar file New Yal Tyr Gly Pro Phm 807 30 ctc ttt gcc ctg gag atg ctg ctg and ctg ctg ttg tat gat now ttl gcc ctg gam acc ctc ttg gam acc ttc gar ggc tac acc acc and yar ccc tac mac acc ttc gar ggr gcc atc acc and acc acc acc acc acc acc acc acc acc ac	20	Leu	agg Arg	gac Asp	ccc	çac Bis	Ser	agg Arg	ngg Arg	cas Gln	egg Arg	305	Les	giy ggo	eca Pro	gat Asp	Ala	2160
cos aog ett gra gas egs ang tas tit ggs ogg ggs ste atg ats ggs Ang Lys Ile Val Ang Ser Lys Tyr Phe fily Ang Sly Ile Met Ile Ale 745 30 ats ong gits aas and ste age ang ggs ats gat at care gga gas gor 11e Leu Val Ann Thr Leu Ser Met Gly Ile Glu Tyr Hin Glu Gln Pro 755 35 Glu Glu Leu Thr Ann Thr Leu Ser Met Gly Ile Glu Tyr Hin Glu Gln Pro 765 36 ag gga cut act act act act age ang act act age and act gro ste act age 37 Glu Glu Leu Thr Ann Ala Leu Glu Ile Ser Ann Ile Val Phe Thr Ser 770 37 Thr Ann Thr Leu Leu Leu Leu Leu Lyt gat act gro ser 770 38 Thr Ala Leu Glu Met Leu Leu Lyt Leu Lyt Gly Pro Phe 785 380 380 380 380 380 380 380 3	2.2	gaç Glu	gee	ago Sec	tet Ser	Yal	ren	ggc Alæ	tto Pha	tgg Trp	Arg	cra	atc	tgt Cys	gac Asp	2,152	Ctc Pha	2208
The Len Val Asn Thr Len Ser Meh Gly Tie Glu Tyr His Glu Gle Pro 785 gag gag cut acc sec goo cts gee atc agc acc atc gro tto acc agc 2352 JS Glu Glu Len Thr Asn Ale Len Glu Hie Ser Asn Lie Val Phe Thr Ser 785 ctc ttt gcc ctg gag acc ctg ctg aag ctg ctt gtg tat ggt ccc ttt gcc ctg gag acc ctg ctg aag ctg ctg ttg tat ggt ccc ttt gro Phe Ale Len Glu Met Len Len Lys Len Len Val Tyr Gly Pro Phe 886 ggc tac acc acc aag gat ccc tac aac acc ttc gat ggt gtc att gtg gtc cly Tyr Fle Lys Ran Pro Tyr Asn Fle Phe Aap Gly Val Fle Val Val arn agc gtg tgg gag stc gtg ggc cag cag gyg ggc ctg tcg gtg gar acc acc tac gat gtg gtc car acc acc acc acc acc acc acc acc ac	43	ega Aeg	aag Lys	ett Ile	Val	gac Asp	ego Ser	raed Paed	tac	Phe	GLy GLy	Arq	gga Gly	sto	ec.	atc 11e	gcc	2286
JS Gld Gld leu Thr Ash Ala Leu Glu Ile Ser Ash Ile Val Phe Thr Ser 770 785 ct tit goo otg gag atg otg org and adg otg cit gtg tat gat not tit Leu Phe Ala Leu Glu Met Leu Leu Lyu Leu Leu Val Tyr Gly Pro Phe 800 785 790 995 and atg and coc tat asc atc tid gat gdt git at gtg git Gly Tyr Ile Lys Ran Pro Tyr Ash Ile Phe Asp Gly Val Ile Val	30	ato	erg uså	Val.	Asn	aca	ete Lea	ago Ser	Met	ggc Gly	ato	gaa Glu	tec	8.1.8	gag Glu	caq Gln	002 8x0	2304
Len Pre Ala len 610 Weet Leu Leu Lys Leu Val Tyr Gly Pro She 750 ggc tac atc and and sat cuc tac mac atc ttd gat ggt gtc att gtg gtc Gly Tyr He Lys Ann Pro Tyr Ann He She App Gly Val He Val Val 805 arn agc gtg tgg gag stc gtg ggc cag cag gyg ggc ctg tto gtg Ha Ser Val Trp Glu He Val Gly Cln Gln Gly Gly Gly Leu Ser Val 820 50 ctg ogg acc ttc ogo ctg atg ogt ctg ctg ctg gtg ggc ctg tto gtg Lan Arg Thr She Arg Leu Met Arg Val Leu Mys Leu Val Arg She Leu 835 50 ctg ogg acc ttc ogo ctg atg ogt gtg ctg atg ctg gtg ggc og tto ctg Lan Arg Thr She Arg Leu Met Arg Val Leu Mys Leu Val Arg She Leu 835 50 ctg ogg acc acg cag ctg gtg gtg gtg ctg acg acg acg tto ctg Sat 845 55 Pro Ala Leu Gln Rrg Gln Leu Val Val Leu Met Lys Thr Met Anp Ann 855 60 stg cc ann tto tge atg ctg tt atg stc tt app ttt at the She She 866 867 868 868 869 860 860 860 860 860	35	gag Glu	GLu	atr Leu	acc	asc Asn	gcc Ala	Leu	gaa Glu	atc Ile	ágc Ser	aac Ass	lle	gtc Vai	tto Phe	acc	agc Set	2352
Sily Tyr lie Lys Ran Pro Tyr Asn lie Phe Asp Giy Vel Tie Val Val 815 arn ago gig tog gag arc gig gao cag cag gyg gyo ggo cig tog gig lie Ser Val Trp Giu lie Val Giy Gin Ghn Gly Gly Gly Leu Ser Val 820 50 ctg gag acc ttc ogo cig atg gag cag eag gig gag cig tog gig Lan Arg Thr Phe Arg Leu Mer Arg Val Leu Lys Leu Val Arg Phe Leu 835 50 ccg gag cig cag cig gig gag cig gig gig cig aag acc atg gar aac 845 55 Pro Ala Leu Gin Arg Gin Leu Val Val Leu Met Lys Thr Met Asp Asn 850 60 gig gcc aan tto iga atg cig cit gig tig gag aac atg gar acc Val Ala Thr Phe Cys Met Lau Leu Met Lys The Phe lie Phe 86 60 865 60 865 60 866	40	180	ttt Phe	gcc Ala	ctg	gaş Glu	Mest	arg	cng Leu	aag Lys	ctg	Leu	gtg Val	tac Tyr	ggt Gly	eca Pro	Sue	2400
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1330 gan sine gig etg ate mee 1330 gan sine geg eag ate Leu Val Leu Ila Ser 1330 gan sine geg eag ate App Ser Giy Thr Lys Ilu 1365 etg gig gig etg ate mee Ala Giu Thr Leu Arg The Leu Arg 1365 etg gig gig etg ate mee Arg Thi Leu Arg ag egg etg etg 1376 etg gig gig etg ate mee Arg Thi Leu Arg pro kau 1385 etg gig ate det getg egg val Val Val Giu Thr Leu Val Val Leu Ctg tag egg val val Val Ciu Thr Leu Val Val Ciu Thr Leu Val Val Leu Ctg tag egg val val Val Ciu Thr Leu Val Val Leu Ctg tag egg val val Val Ciu Thr Leu Val Val Lie Vys Cya Ala	Asp For Let Gin 9al Pro Siy 1155 tot got tot geg cac tag dan Ser Alas Ser Siu his Din Ang 1175 ctg got odg god ctg rgg cot Law Ala Arg Ala Let Wri Pro 1188 1189 god akt gac odg ogd eac ctg Ala Sap Ala Sia Let Wri Pro Ala 1205 atc cya god odg are met god cot and Ala Arg Ala Arg Let Pro Ala 1220 god tag are the cet out cam Ala Tyr Ile Phe Pro Pro Glo 1235 atc atc acc man sag atg trained and cya let and the Pro Pro Glo 1235 atc atc acc man sag atg trained 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Met Gil Arg Pro Lys Ile Asp Pro 1265 act and tog ath acd ath gat stg gad cgd cod asa stl dad cod Leu Asp Cys Ile Thr Ile Ala Met Gil Arg Pro Lys Ile Asp Pro 1265 gud thi dtg get gam atg ada gdt and gdt gdg gda ctg gd cdg cyg yal Phe Leu Ain Gil Net Thr Val Lys Val Val Ala Leu Gily Typ Yal Phe Leu Ain Gil Net Thr Val Lys Val Val Ala Leu Gily Typ Yal Phe Leu Ain Gil Net Thr Val Lys Val Val Ala Leu Gily Typ Yal Phe Leu Ain Gil Net Thr Val Lys Val Val Ala Leu Gily Typ Yal Phe Leu Ain Gil Net Thr Val Lys Val Val Ala Leu Gily Typ Yal Leu Asp 11300 tet gad gad cad god ta ctg cgd ada agt teg gad gtd ctg cyg ctg Ala Squ Gd cad are too ghe atc gad att ctg gd tod atg ged cad are too ghe atc gad att ctg gd tod atg ged cyg ctg Ain Squ Gd cad are too ghe atc gad atg ctg ag gd gd ctg cyg ctg Ain Squ Gd cad are too leu Ain File Asp Ile Leu Val Ser Met Val 1330 gan squ gg gad cad ang ctg atg too tha c	tet get tet geg cac mag dae tet mat get mag til get tem geg oge en als Ser Glu his Gle Ann Cys Ann Gly 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5	aac elc Aec lie 1425	acc The	aar Asn	Lys	109 Ser 430	gac Asp	tgt Cys	gee Ala	Glu	gcc Ala 435	agt Ser	tar Tyr	923 933	Tro	270 Val 440	4320
10	ngg cs: Asg Sis	asg Lys	777	aa¢ Asn 448	222 208	gac Asp	aac Asn	200	390 Gly .450	oaq Gin	god Ala	213 Lea	Wet	ser Ser	ctg Leo	4369
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20	cts gar Leu Asp	gst Als 1475	gtg Val	ggc Gly	gtg Val	ăsp.	cag Gin (480	caq Gln	ecc Pro	arc Ile	Met	aac Asn 495	cac Ris	aac Asn	ecc Pro	1464
25	tgg atg Trp Het 1490	Less	atg Leu	tac Tyr	Pbe	ate Tia 1495	tcg 9er	ttc Phe	ctg Leu	Lea	att Tle 500	geg Val	gcc Ala	tta Phe	ttt Pbe	1312
	gto org Val Leu 1505	asç Asn	atg Met	ttt Phe	grg Val 510	ggr ggr	grg Val	gtg Val	gtg Val	gag Glu 1515	aac Asn	tto Pho	cac Sis	aaq Lys	tot Cys L528	4560
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33	cta cga Leu Arg	Arg	ctg Leu 540	gag Glu	aaa Lys	aag Lys	Arg	agg Arg 1545	agt Ser	aag Lys	gag Giu	Lys	aag Gla 1550	atq	get Ala	4656
40	gat cta Asp Leu	309 Met 1555	atg Leu	gac Asp	gat Asp	Val	att 11e 1560	got Ala	ser	ggc 61y	300	tca Ser 1565	gcc	agc Ser	Ala	1701
-45	gog eca Ala Ser 1370	GLu	goc Ala	gag Gln	Cys	aaa Lys 1575	oct	tyr	tac Tyr	Ser	gan Asp 1580	rac	3et :00	ogc	Phe	475%
72	agg ato Arg Leu 1585	. Les	gtc Val	Ris	Cac Ris 1590	ttg Leu	tgo Cys	acc	Ser	cac His 1595	tac Tyr	ctg	gac Asp	Leu	tta Phe 1600	4800
50	ato aca Lle Thr	ggt	gtc Val	atc Tle	ggg Gly	utg Leu	aac Aan	grq Val	gte Val 1610	acc Tor	ang Met	gcc	atg Met	gag G1u 1615	Cac His	4848
53	tac cag Tyr Gin	Gin	ces Pro 1620	caq Gln	att	ctg	Asp	989 Glu 1625	Ala	ctq Lea	aag Lys	Tie	ego Cys 1630	Asn	tac	\$866
60	ato tto lie Phe	1635	gte Val	atc	ert Phe	Val	ttg Leu 1640	Gla	t ca Ser	gra Val	506	aaa Lys 1643	1.23	gtq Val	ges Ala	4944
	ttt gg: Pne Gly 1683	Phe	ogt Arg	ogg Arğ	Phe	tti Pne 1655	63 2	дас Авр	agg Arg	Tro	880 880	Gin	ong Leb	33.5 Asp	cts	1897

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	gec att Ala Tle 1665	gtg Vel	utç Leu	1 XX.	ccc Ser g7g	ato Ile	27.9 891	31.y	tie	acy Thy 675	ėtą Lęu	985 Glo	314	275	gaq Glu 680	5040
S	gto sas Vai Rac	poc Ale	Ser	ctg Leu 685	520	at: Tle	aac Aar	Pro	acc Thr 690	atc Tie	ile	ogs Arg	774	at; Mai 1695	agg Arg	5088
10	gig otg Val Leo	Arg	811 11e 1700	goo Ala	oga Arg	gtg Val	Leu	aag Lys 705	cty beu	ctg Kau	eeg Lys	969.0	301 Ala 710	Y & -	ggo Gly	5136
13	atq ogq Met Arg	gog Ala 1715	ctq Leu	atg Leu	gac Asp	acq The	gtg Val 1720	atq Met	Cag Glm	goo Ala	ctg Lesu	000 Pro 725	caş Gln	A97 6:4	317 344	9164
20	aso org Asn Leo 1730	Gly	ctt Leu	ata Leu	ene	aig Mes 735	22g 480	ttg Leu	ttt Pbe	Phe	atc [Le 1740	tht	gca Ala	gut Als	ctg Lau	3232
25	ggc qtg Gly Yal 1745	gag Glu	cte Leu	Pho	gga Gly 1750	gac Asp	ct.q Lea	gag Glu	Суэ	gac Asp 755	gag Glu	aca Thr	cac His	520	tgt Cys 760	5280
ش	gag ggc Glu Gly	dtg len	Gly	ogt Arg 1755	cat His	goc Ala	scc The	500	dgg A£g 1770	aac Asn	ttt Phø	er ggc	W. S. E.	gec Ala 1775	tro Phé	3328
30	ota acc Leu The	Leu	tto Phe 1780	oga	grc Val	red Ser	Thr	ggt Gly 1785	gac Asp	aat Aan	tga Trp	Asp	ggc Gly L790	att	atg Met	5376
33	asq gac Lys Asp	acc Thr 1795	ctc	ogg Arg	gac Asp	Cys	gac Asp 1800	cag Gln	gag Glu	tec Ser	Thr	tga Cys 1805	tec Tyr	asc Ass	acq Thr	5424
40	gtc acc Val Tle 1810	Ser	Pro	ato	Tyr	rca Phe 1815	grd Val	toc Ser	tts Phe	Val	arg Leu 1820	acg	gec Ala	Gin	ttc Phe	5472
45	gig cta Val Leo 1825	qto Val	aac Asn	Val.	gtq Vai 1930	atc Zie	gec Ale	gtg Val	200	atg Mat 1835	Ly3	cac Ris	arg Leu	Giu	989 Glu 1840	5920
47	age aac Ser Asn	aag Lys	Glu	goo Ala 1845	aaq Lys	g#g Glu	gag Glu	Ala	gag Glu 1850	cta Leu	gag Glu	gct Ala	Glu	erg Len 1899	gag Glu	9968
30	ctg gaq keu Glu	tet:	aag Lys 1860	acc Thr	ctc	agc Se:	Pro	caq Glo 1865	ece Fro	Sls	ser ser	Fro	ceg Leu 1870	Giy	agc	5816
35	noe tto Fro Phe	ctc Leu 1873	Tep	Pro	999 G1y	Val	gag G1u 1886	Gly	823 ccc	gac Asp	Ser	coc Pro 1885	gac Asp	aq: Ser	acc Pro	3064
60	aag oot Lys Pro 1890	oly	got Ala	ong beu	His	oda Pro 1993	Ale	god Als	cac Ris	Ala	aga Arg 1900	tca Sar	ges Ala	582 582	333 813	5710
	ttt tod Phe Set 1905	o deg	G13 Gag	823	220 220 1910	200	arg Net	caq Glo	820	cac His 1915	8:5	acq	989 010	1.4%	008 9x6 1927	6760

	aga cca Gi, Pro	gac tra Asp Led	etg set Leu Thr 1925	gtg tgy Val Arg	eag tot Lys Ser 1930	999 911 89 Gly 781 28	c cgs ang has I Arg Thr His 1935	\$808
5	tor org Ser Leu	itt aat Pro Ass 1940	Asp Ser	Tyr Mes	tgt egg Cys Arg 1945	cet ggg sp His Gly Be	ic art gdd ga; ir Thr Ala Gli 1980	1916
10	Gly Pro						n sag tva ggd a Gin San Gla S	
13	tod gta Ser Val 1970	ntg too Led Ser	Val Bis	toc cag Ser Glo 1975	eça gca Pru Ala	gat acc ag Asp Thr Se 1980	c tad ato oto	5932
20	cag ctt Gin Leu 1985	oco ass Pro Lys	get gca Asp Ala 1990	cct cat Pro His	Leo Leo	cag occ ca Glo Pro Hi 1993	e ago got com # Ser Aia Pro 2000	>
25							g Ser Pro Let 2015	
- A - A	get eaq Ala Glo	agg cca Arg Pro 2020	Leu Arg	Arg Gin	gca gca Ala Ala 2025	ata agg ac lle Arg Th	n ged top tr ir Asp Ser Lei 2030	g 6096
30	Asp Val	caq qqt Sln Gly 2035	ctg ggc Leu Gly	agc cqq 9er Arg 2040	gaa gas Glu Asp	org org go Leu Leu Al 204	e gag gtg ag: s Siv Val Se: 5	: 6144 r
35		Ser Pro	Pro Leu				g ggs cag to g Gly Gln Se	
40					Arg Ser		g atc too as: 2s lie Ser Ly: 208:	\$
45	sac etg Ris Met	Thr Pro	cos god Pro Ala 2085	ect tge Pro Cys	eca ggo Pro Gly 2090	oca gas co Pro Glu Pi	to Aan Trp Gl 2095	: 6288 Y
,,,			Glu Thr	Arg Ser			ic acq gag ct ip Thi Glo Le 2110	
50	Ser Trp	att tes The Sec 2115	gga gac Gly Asp	ets stg Leo Leo 2120	odd eet Pro Pro	Gra ora or dac dac or	ng gag gng co in Glu Gic Pro 25	c 6394 c
33	ees tee Pro Ser 2130	Pro Arc	Asp Leu	eag aag Lys Lys 2135	tgd tac Cys Tyr	age gtg ge Ser Val Gl 2140	ig god dag ag Lu Ala Gin Se	e 6431
60				Sec Trp	Leu Asp		ng aga sac to g Asy His Sa 216	5
	atc goo	gec age Vai.Se	tac ora Cya Leo Jisi	gar ago Asp Ser	ggd tod Gly Ser 2178	cas are to Glo Pro E	it see god ac La Lab Gil Th 2175	3 6538 2

	gac Asp	ect Era	Ser	asr Asc 190	ess Leu	214 636	ggo 51y	630	001 Pro	on: leta	017 333	333 51 y	Pec	999 617 190	ago Ser	923 033	5576
j		Lys		eaa Lys			Pro					119					\$624
10	Ser	Gin 210	ggt Gly	001 Pro	9x3	Tar	009 Pro 215	810 633	agc Ser	000	Gly	atc 310 220	ty: Cys	nto Leu	agg Arg	agg Arg	6672
15		Als		tice Sec	Ser					880					500		6720
20	gac Asp	ago Ser	asg Mec	qc: Ala	gec Ala 245	tog Ser	5to ccc	tec Sex	Pro	aag Lys 2250	Lys	get Asp	gtg Val	580	age Ser 1256	070	6768
~ "	ser	ggt Gly	Labia	too Ser 2260	542	gac Asp	cca Pro	Ala	gac Asp 2265	ctq Lau	gac Asp	000 920					6804
25	<210)> 4 (> 6'	220														
30	< 212	2× D1	7.3	sapie	341 g												
33		> C		(672	9}												
55	<400																
40	atg Met 1	Asp	Slo	gag Glu	gag Glu 5	Asp	er ggs	Ala	gly	goo Ale 10	Glu	Glu	Sex	Gly	Gls 15	Ptc	48
414				atq Met 20													96
45				t.ca Ser													144
50				eeg Pro													192
55	agc Ser 65	Gin	gac Asp	ago Sec	Arg	eeg Pro 70	Arg	agc Sez	tqq Trp	t gt Cya	Ctc Leu 75	ege Arg	acq	gt.c Val	tgt Cys	aac Asn 80	240
				gag Glu							ile						298
60													ngt				336

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	ogs Arg	tga Cys	Cad Ara 115	ato	Clj Deu	CPT Gir.	ger Ala	chi 9h4 120	ga: Asp	380 Asp	lto Phe	ato tie	511 Pne 125	300 61a	220 956	Phe	384
5	grc Ala	919 V&1 130	gag Glu	ecq Met	A97 020	gen gen	aag Lys 135	atg Met	giç Vəl	gos Āla	tig	990 61y 149	278	777 978	ggg Gly	aas Lys	432
10	aag Lys 145									ogg Arg							430
15	atc Iim	gos Ala	999 519	atq Met	ctq Leu 165	gag Glo	tac Tyr	tog Ser	org Seu	980 Aap 170	org Leu	cág Gin	eec Asn	gto Val	agd Sex 175	ttc Pbe	520
20	tca Ser	got Ala	375 Val	agg Arg 186	aca	gto Val	ogt Arg	gtg Val	ctg Led 185	oga Arq	ang Pro	atc Leu	Arg agg	gce Ala 190	atr Tle	aac Asn	376
214	ogg	gtq Vol	ecc Pro 195	agc Ser	atq Het	arg	arc Tie	ctt Leu 200	gtc Val	acg Thr	ttg Leu	org Leu	059 Leu 205	gat Azş	acg Thr	ctg beu	524
25	aac Pro	ace det 210	ctg Leu	gly ggc	aad Apo	gtc Val	ctg Leu 219	ctg Leu	ctc Leu	Cys	ntc Phe	tto Phe 220	gto Val	tts Phe	t no Phe	arc Ile	672
30	ttc Phe 225	eīà ââc	arc	gsc Val	grà gặc	950 981 230	caq Gin	erg Lea	tgg Trp	gca Ala	999 61y 235	otg Leu	ctt Leu	Arg	aac Aso	cga Arg 240	720
35										000 Pro 250							768
40	ege Arg	tat Tyr	Tyr	Cag Gin 260	aca	gag Glu	aec Asc	gag Glu	get Asp 265	gag Glu	agc Ser	Pro	ttc Phe	ats Ile 270	tga Cys	son Ser	816
41)	oag Gln	cca 970	090 Arg 275	gaq Glu	aac Asn	ggc	atg Met	ngg Arg 280	red Ser	tga Cys	aga Arg	ago Ser	gtg Val 285	ecc Pro	acg Thr	ctg Leu	864
4.5	ogc Arg	999 917 290	gac Asp	ejà ààà	ggê Gly	ggt Gly	ggc Gly 295	oca Pro	cct	tgc Cys	ggt Gly	ctq Les 300	gac Asp	rat	gag Glu	gee Ala	912
50	tac Tyr 305	aac Aen	age Ser	Ser	ago Ser	asc Ast 310	aco	acc The	tgt Cys	gto Väl	aac Asn 315	tgg Trp	aac Asn	caq Gln	Tyr	Tyr 320	960
35	acc Thr	aac Asn	cgo Cya	boa Ser	gcg Ala 325	G1A aaa	qaq Glu	cac His	880 886	000 230	t co Phe	aag Lys	ggc	gcc	acc Tle 333	aac Asn	1009
60	Ett. Pha	gac	aac Aso	att lle 340	Gly	tat	gon Als	rgg	acc Tla 345	goo Ala	aco	tto Pha	cag Gin	gtc Val 350	acc	acg Thi	1036
citt	ceq Leu	gag	990 619 355	tqq	gto Věl	940 Asp	att	atg Mat 360	tac	ette Phe	gtg Val	atg Net	985 Asp 365	get Ala	cat His	coc Ser	1151

	tto	tac Tyr 376	aat Aac	Phe	att	tad Tyr	eta Pha 375	ADC Tle	985 020	Les	and	11e 380	928 Ve:	og y gge	LAI Set	tic Phe	1130
3	tto Pha 385	atg Mot	11e	aac Arn	ren	090 093 390	ong Leo	7:7 Val	gr j Val	att	900 Ale 393	acg Thr	caş Gin	tt: Pho	toa Ser	949 914 400	1200
10	acc The	eeq iys	630 cag	agg Arg	gaa Glu 405	agc Sex	caş Gin	ctg Leu	atg Met	cgg Arg 410	gag Glo	cag 51n	og: Arg	qtg Val	478 478	etc Phe	1248
15	org Leu	noc	aau Asn	gac Ala 420	860 860	acc Thr	ctq Leu	got Ale	agc Ser 425	ste She	tot Set	gag Glu	000 850	930 430	egs Ser	tqc Cys	1296
		gag Glu														ger Ala	1344
20			Leu													ctg Leu	1392
25		ago Ser															1440
30	agn Ser	tgc Cys	tet Ber	aga Azg	5er 485	cac	Arg ogo	Apg	cta Leu	tan Ser 490	gro Val	nac His	eac Wis	ctg	gtq Val 495	cac Ris	1489
35	Ris	sac His	cac dis	cac His 500	cat His	cac Sis	cac Hls	dac	tac Tyr 305	cac His	ctq Leu	ggc Gly	aac Asn	999 Gly 510	acq Tnr	ctc Leo	1536
40		A13 gcc															1.564
70	too Ser	ogc Arg 530	egg	cto	acg Net	Ctg. Leu	00a Pro 535	520 00s	Pro	teg Ser	acq Th:	ccr Pro 540	goc Alæ	ctc Lev	tcc Ser	Gly	1632
43	gec Ala 545	eco Pro	oot Pro	ggt Gly	617 ddc	gca Ala 550	gag Glu	tot Ser	gtg Val	cac His	agc Ser SSS	tto Phe	tac Tyr	cat	gcc Ala	gac Asp 560	1680
50	tgc Cys	eac Sis	tra Leu	gaç Glu	cca Pro 965	gt¢ Val	ogc Arg	tgc Cys	caq Gin	gcg Ala 570	pro	Pro	rec	agg Arg	rad Ser 573	CCa Pro	1728
55	tot Ser	gag Gilu	gca Ala	000 800 500	ggo	agg Arg	act	gtg Val	gga Gly 585	age Ser	ggg Gly	aag Lys	gtg Val	tat Tyr 590	ecc Pro	acc Thr	1776
eń.		cec Nis		Ser												gts Val	1884
-60	gaq Glo	grg Vai 610	Aim	gci Ala	age Sec	tot	909 619 613	Pro	00a 920	arr	ero leo	acc Thr 626	ago Ser	ctt	aar Asn	etc Ile	1972

	00a 8ro 625	Sto	519 979	occ Pro	tan Tys	ago 3es 630	9es tec	atg Pet	cac Rus	asy Lys	otg Les 635	ing Les	913	alle zoz	usg Gla	agt 6er 640	1920
ŝ	ava The					age Ser											1968
10	gca Ala	gac Asp	agt Ser	666 617 998	goo Alg	t gt Cys	991 619	ccs Plo	980 Asp 665	264 900	tgc Cys	520 ccc	tac Tyr	tgt Cya 670	got Als	yrð cáá	2016
13	goc Ala	ggg Gly	gca Ala 675	81 A 888	gag Slu	gtg Val	gaş Glu	680	gee	qab Aap	ogt Arg	gaa Giq	atg Mec 685	870 870	gac Asp	tca Se:	2064
20	gan Asp	age Sec 690	gag Glu	gca Ala	gtt Val	tat Tyr	gaç Glu 695	tro Phe	aca Thr	caq Gln	gat Asp	gcc Ala 700	çaç a13	gac Wis	ago Ser	gac Asp	2112
20	oto beu 705	dgg Arg	gac Asp	820	cao Mis	ago 3er 710	arg	egg Arg	cae Gin	yrd cdd	agc Sex 715	ctg Leu	elà de	820 928	gar Qap	qca Ala 720	2160
23	Glu	820 000	ser	tot Sør	953 Val 725	crq Leu	gae Ala	the Phe	ngg Trp	agg Arg 730	ota Leu	at: lie	cys Cys	gac qzA	acs Thi 735	ttc Phe	2208
30	cga Ary	aag Lys	att	gtg Val 740	gac Asp	ágc Ser	aag Lys	tac Tyr	ttt Phe 745	ggc ggc	cgg Axg	gga Gly	arc	atq Met 750	ato	gcc	\$556
35	ato	Ctq	gtc Val 755	aac Aso	aca Thr	ara Leu	agc Ser	atg Met 760	gge	atc lia	gaa Glu	tac Tyr	cac His 765	gag Glu	mag Gln	ecc Pro	2364
40	gaq Gla	gaq Glu 770	Ctt Leu	ecc Thr	aac Asn	goc Ala	cta Leu 775	gaa Glu	arc	agc Ser	aac Ass	atc Tle 780	gtc Val	tto Phe	acc	agc Ser	2352
40	otc Leu 785	t.t.t. Phe	gun Ala	atg Lea	gág Glu	atg Mer 790	ong Lea	ctg Leu	aag Lys	otg Leu	ctt Leu 795	gtg Val	tát Tyr	ggt	Pro	ttt Phe 800	2400
45	ggc	tac Tyt	atc	aag Lys	aat Asn 808	Pro	tan Tyr	asc Asc	ato	tto Phe 810	gat Asp	ggt Gly	gtc Val	acc Ile	gtg Val 915	gtc Val	2448
50	atc 11e	age	grg	tgg Trp 820	gag Giu	ato	gtg Val	ggc	cag Gln 825	cag Sin	gag Gly	ggc Gly	Gly	arg Led 830	260	gtg Val	2498
55	ong	. Arg	acc Thr 835	rro Phe	ogo Arg	urg	atg Met	agt Arg 840	gtg Val	ctg	eeg Lys	Leu	gtg Val 845	ega Arg	eso Pae	org Leu	3544
60	eeg Fac	900 81a 850	ctg	Gin	agg Arg	caq Gln	arg Leu 853	gno	otg Val	ctc Leu	atq	aag Lys 860	acc	at 3 Mec	930 ABP	3.84 3.80	2592
UU	gtg Val 865	Ala	acc Thr	ttc Pha	tgc Cys	etg Met 970	peo	intr Les	arg Net	Lev	Etc Phe 875	128	t so Phe	ata	200 Phe	980 591	2840

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	atc 11e	cty Les	ar.	aig Met	081 His 885	oso Leu	ccc Phe	gge GLy	tgc Cys	847 Lys 590	100 95e	asa Ala	ton Swy	212	299 Arg 395	gat Asp	2689
ŝ	999 51y	gac gac	400 705	ces Les 900	879 908	gar Nap	cqq Arq	275	aat Asa 906	255 254	gac Ass	rde Ser	sig Leu	ote Leu 910	itio 134	gcc Ala	2736
10	atc	gro Val	act 7hr 915	get Val	tte Phe	caş Glo	atc Tle	otq Leu 320	acc	089	383 619	esc Asp	988 222 223	550 25%	ada Cys	gto Val	2781
13	ctc	tan Tyr 930	Agg	ggt Gly	atg Net	gec Ala	tak Ser 935	acq Thi	tog Ser	tar 3er	tgg Trp	909 Ala 540	gos Ala	nti Leo	tat Tyr	ttc Ptie	2832
26	011 110 945	Ale gee	onn Leu	atg Met	acc Thr	sto Phe 950	ggc Gly	aac Asn	tec Tyr	gra Val	000 Lea 955	ttc Phe	aat Asn	erq Løu	crq Leu	grc Val 960	2850
20	goo Ala	alt lle	ctq	geg	989 610 985	ggc Gly	stc Pbe	caq Gin	gcg Ala	gag Glu 970	gga Gly	qat Asp	ge: Ala	aac Asn	aag Lys 975	tee Ser	2928
25	gaa Glu	tos Ser	gag Glu	000 920 980	gat Asp	tta Phe	tto Phe	toa Ser	000 Pro 985	agc Sex	ctg Leu	gat Asp	ggt Gly	381 Asp 990	gly		3976
30	aqų Arg	aag Lys	aag Lys 995	tgo Cys	t og Leu	goc	Leu	gtg Val 1000	toc Ser	ctg Leu	gga Gly	Glu	¢ac His 1005	bab dad	gag Qlu	ctg Leu	3924
35	Arg	aag Lys 1910	age Ser	etg Leu	ctg Leu	220	eet Pro 1015	cto Leu	ata	atc Tie	Ris	acg Thr 1020	gcc Ala	goo Ala	aca The	ece Pro	3072
40	arq Net 102	Sec	ctg	520 GGG	Lys	age 1830	ace	agc Ser	acg Thr	ggc Gly	otg Leu 1035	Giy	gag Glu	gcg åla	11997	990 617 1040	3120
-417	act Pro	gcg Als	tog Ser	Acq	ogc Arg 1045	Thr	ago Ser	agc Ser	Ser	999 Gly 1050	teg Ser	goa Ala	gag Glu	810	999 61y 1085	gog Ala	3168
43	goc	cac	320	atg Met 1060	298	ses Ses	pro	800	agc Ser 1065	gcc Ala	Arg	ago Ser	Ser	eeg Fro 1070	cac Ris	Ser	3216
50	Pro	Trp	age 5er 1075	Ala	gas Ala	agc Ser	Ser	tgo Txp 1080	The	aqc	agg Arg	ago	007 5e2 5601	agc Ser	egg Arg	aac Asn	3264
35	Ser	otc last 1090	Gly	ogt Arg	gca Ala	220	agc Ser 1995	Leu	Lys	agg Arg	Arg	ago Sen 1100	coa	agt Ser	gga Gly	gag Glu	3312
60	agg Arg 110	Arg	500 892	erg Led	Leu	1370 Sec 1370	GLY	gaa Gtu	ggo	Gin	gag Glu 1119	902	Gin	gat Asp	014	909 010 1120	3360
60	ğan Gis	age Sec	Se:	Gio Gio	gaq 919 1125	010	egg Arq	god Ala	Sec	00t Pro 1130	Ala	GL ₂	891 881	485	: 255 His 1135	Arg	3409

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	est agg	999 tai 519 Jez 1140	ora gag heu Slo	Arg Sic	300 883 Ala Lya 348	agh too t Ser Ser P	tr gan org he Asp lav 1155	ina 3462 Pro
3	Asp Thi	cto ceg Leu Gln 155	Asi Sto	ggg otg 31y Les 1160	cat ogc Bls Axg	#21 god a The Ala S Il	er 314 yrd ar 341 ade	ggg 3504 Gly
10	tot gtt Ser Als 1170	tot gag Ser Slu	Has Bln	gat tgc Asp Cys 175	ast ggc Aso Gly	aag tog g Lys Sec S 1180	or the gyp la Ser Gly	ogo 3552 Arg
15	ccg gec Leu Als 1185	ogg god Arg Ala	ctq cgg Leu Arg 1190	oct gat Pro Asp	Asp Pro	cca oig g Pro Lec 2 195	ab gil yar ar dat dar	gac 3500 Asp 200
20	gdo gat Ala Asp	Asp Glu	qqc aac Gly Asn 208	ong ago Leu Ser	aaa ggg Lys Giy 1210	gaa ogg g Glu Arg V	to ego gog al Arg Ala 1215	tgg 3648 Trp
20	atc cgs Tle Arg	yoo oga Ala Arg 1220	cte cot Leu Pro	Ala Cys	aga ata Cys Leu (225	gag cga g Giu Arg A	ac tor tog ap Ser Trp 1230	toa 2696 Ser
25	Ala Tyr	atc tec Tim Phe 235	oct ont Pro Pro	cag tcc Gln Sar 1240	agg tto Arg Pha	Arg Leu 1	ty tgt car eu Cys Sis 45	oga 3744 Arg
30	atc arc Ile Ile 1250	acc cae Thr Ris	asq atq Lys Met J	tto gac Phe Asp 255	cac gtg His Val	gto otr q Val čeu V 1280	to asc atc	tro 3792 Phe
35	ctt aac Leu Asn 1265	tgo atc Cys Ile	acc atc Thr Ile 1270	que atg Ala Met	Glu Arg	ccc asa s Pro Lys I .275	tt gas occ le Asp Pro	cac 3940 Ris (280
40	ago got Ser Ala	Glu Arg	atc ttc Ila Phe 1285	ctg acc Leu Thr	ctc tcc Les Sar 1290	aat tac a Aso Tyr I	to tto eco le Phe Thr 1295	gca 3888 Aie
7.0	ges tet Val Phe	otg got Leu Ala 1300	gaa atg Glu Met	aca gtg The Val	aag gtg Lys Yal 1305	gtg gca (Val Ala i	tg ggc Egg eu Gly Trp 1310	ego 3936 Cys
45	Phe Gly	gag cag Glu Gln 315	geg tac Ala Tyr	ctg cgg Leu Arg 1320	ags agt Ser Ser	Tro Asn 1	ty otg gan Mai Leo Asp 125	ggg 3984 Giy
50	ctg ttg Leu Leu 1330	gtg ctc Val Lec	Tle Ser	gtc atc Val (le 1335	gac att Asp Tie	ctg gtg : Leu Val : 1340	ee atg gto er Net Val	tot 1031 Ser
55	gae age Asp Ser 1345	ggc acc Gly Thr	aag ato Lys Tie 1350	ong ggo Leu Giy	Met. Leu	agg gtg : Arg Val 355	ntg sgg etg æd Arg Leu	org 4080 Leu 1360
60		Leu Arg					ag ggo oto Nn Gly Leo 1376	
	ėtą gtą Leu Vai	gtg gag Val Glu 1380	ang ctg Thr Leu	M00 S98	toa etg San Leu 1395	saa ccc (Lys Pro)	ett god 890 Le Gly Asn 1390	att 4176 Ile

bts give are top tot got the the acc act the gas als mig ago phy Val Val Tie Cys Cys Ala Phe the The The Phe Siy the bes Siy Val 3 can ett tte aak opg aks tit tie sty toe dag got sag gat and agg 4270 Gin Lew Phe Lys Gly Lys Phe the Val Cya Gun Gly Glu App Thr Arg 4320 ase ato acc ase ase tog gat tot you gad goo agt tee ong ogg of a ogg dad bag tat amo ett gad san der ggd dag gdd etg meg tat deg Arg Him Lyx Tyr Amn Pha Amp Amn Leu Gly Gle Alm Leu Met Ser Leu 4348 1445 1450 ttd git sig god tod mag gat ggt sgg gad atd at% tmd gat ggg Phe Val Leu Alm Ser Lys Asp Gly Trp Val Asp Tie Mct Tyr Asp Gly 4416 ctg gat got gtg ggc gcg gar cag cag ccc atc atg aac tat aat ccc 4464 Leu Asp Ala Vel Giy Vai Asp Gin Gin Pro Ile Met Asn Ris Asn Pro tag atg ong ong tac the ate tog the ong the are gra goo the thi 3517 Trp Met Leu Leu Tyr Phe Lie Ser Phe Leu beu Ils Val Ala Phe Phe 1490 1495 gto ong eac and the guy got gro gro gro gey ase the eac ase tot 4560 30 Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe Sis Lys Cys 1505 1510 4608 cộc cán tác cán gay gan gay gay gươ cộy cáy cáy gay gay sáy cýc Ary Cln Ris Gin Giu Giu Giu Giu Ala Ary Ary Ary Giu Gin Lys Ary 35 1525 1530 tta cqa aga ctg gag ass sag aga agg asa gcc bag tgc ass cot tac 4636 Let Arg Arg Let Slu Lys Lys Arg Arg Lys Ala Glo Cys Lys Fro Tyr 10 two too gas two two age too day one ond gro can had the age acc 4704 Tyr Ser Asp Tyr Ser Arg Phe Arg Leu Leu Vel His His Len Cys Thr ago can tan one gan one the ato aca got gin and ggg ong aad gig Ser His Tyr Leu Asp Lau Phe Ile Thr Gly Val Ile Gly Leu Ash Val gto acc atg gen ang gag oac tao cag cay ten cag ant etg gat gag Val The Met Ala Met Glu His Tyn Gin Gin Pro Glo Ile Leu Asp Glu 4800 1590 got dtg sag ato tgo aac tac ato tto aot gto ato tto gto tig gag Ala Leu Lys lie Cys Aso Tyr lie Phe Thr Val lie Phe Val Leu Glu 4848 1610 too get the age out gog goo but got the out ogg too the day goe 3888 Ser Val Phe Lys Len Val Ala Phe Gly Phe Arg Arg Phe Phe Glo Asp

agg tgg aac cag ctg gac ctg gor arr gtg crg ccg tcc atc at; ggc 4944 Arg Tro Asn Ghh beu Asp Leu Ala Ile Val Leu Ser lle Mat Gi; 1635

	acc acc Lie Thr 1859	1.25	gaq Glu	ças Glu	7.18	040 Giu 655	gcc Val	aad Aso	gés Ala	Ser	sty Leu 666	220	all The	aat Aan	000 820	4992
š	soc ato The lie 1985	acc	age Axg	118	stq Bet 670	aqq Acg	gtş Yal	ctg Leu	223	att Tie 675	Ala gcc	uya Arg	913 Val	780	eag Lys 680	5040
10	its ots Len Len	ang Lys	Mec	301 Ala 1685	gtg Val	ggo Gly	ang Mat	Arg	903 Ala 1690	ctģ Leu	cty Let	gac Asp	Thr	gtg Val 695	atg Mec	3088
13	cag goo Gin Ala	Leu	000 Pro [700	Gia	gt.g Val	61 A 663	Apri	ctg Leu 1705	qqa Gly	ont Seu	cee	574	atq Mai 710	ttg Leb	ttg Leu	5136
20	Lit too Phe Pne	stc fle 1715	tit Phe	gca Ala	gct Ala	Least	ggc 61y 1726	gro Val	QAQ Glu	ero Seu	유하는	gga Gly 1725	gác Asp	atg Leu	gaş Glu	5184
20	tgt gac Cys Atp 1736	131,13	aca Tor	cac Sis	Pro	tgt Cys 1736	gag Glu	99c	atg Leu	Gly	ogt Arg 740	cas His	goo Ala	acc The	tit Pbe	5232
25	ogg asc Arg Ass 1745	ttt Pho	gge Gly	Mec	got Ala 1750	ttc Phe	ons Lou	acc Thr	Leu	ttc Phe 1755	Arg cga	gtc Val	zcc Ser	Thr	97t 91y 760	5286
30	gac aat Asp Asn	tgg Trp	Asr	ggc Gly 1765	ott Ile	atg Met	aag Lys	Asp	acc Thr 1770	oto Leu	ogq Arg	gac Asp	Cys	gac Asp 1775	cag Gin	8326
35	gan tee Glo Ser	Thr	tgo Cya 1780	tac Tyx	aac Asn	acg The	Val	atd 11e 1785	teg Ser	cct Pro	atc lie	Tyr	tci Phm 1790	gtq Val	toc Ser	5376
40	ttr gtg Phe Val	019 Leu 1795	The	gcc Ala	cag Gin	2ha	gtq Val 1800	cta Leu	gtc Val	aac Asn	Yal	grg Yai 1805	atc Ile	gcc Ala	gtg Val	5424
40	ctq atq Leu Met 1810	Lys	cac Sis	atg Leu	Glu	gag Glu 1815	Sac	aat Asn	aag Lys	Glu	gcc Ala 1820	aag Lys	gaq Glu	gaq Glu	gac Als	\$472
45	gag cta Glu Leu 1825	gag Glu	gat Ala	Glu	сту Бер 1830	gag Glu	ctg Leu	gag Glu	Met	889 Lys 1835	acc Thr	ctc Leu	agc	gro	cag Gin L840	3520
30	occ cae Pro His	ton Sec	800	ctg Leu 1845	ggc	agc Ser	000	8µ5	oto Leu 1850	tgg	cor	999 Gl9	Val	gag Glu 1935	ggo Gly	5568
55	occ gac Fro Asp	Ser		Asp			Lys		Gly			813				5616
.6	cac gog His Ale	aga Arg 1875	Sex	nnn Ala	Ser	843	ttt Phe 1980	Ser	ctg Leu	gag	Has	ccc Pro 1885	acg	atg Met	caq Glo	5664
60	ccc cac Pro 814 1890	Pro	acq The	gaq Glu	Less	00a Pro 1895	315	000 920	gaç Asp	Leu	erg beu 1900	act. The	gt.g Val	yrg	aaç Lys	5712

	irt ggg Ser Gly 1995	gts Vai	ago Sar	600	acg The 910	040 811	tot Ser	ctg Leu	Pro	% # T Ren. 915	gac Asp	agc Ser	tes	Met	tgt Cys 926	5760
Š	ogy vat Arg Ris	61 A 888	Ser	act To: 1925	gcc Ala	gag Glu	999 G19	540	otg Seu 1930	qga Gly	osc Kis	agg Arg	247	199 179 935	993 Gly	5808
)	stc sec Leu Pto	Lys	gct Ala 1949	Gin	toa Sez	ggn Gly	26.	gro Val 1945	ttq Lau	goc Sez	gat Val	828	ser 980	cag Glo	eca Pro	5856
3	gca qat Ala Asp	acc The 1955	agc Ser	tac Tyx	atc Ile	1.20	saq Gin 1950	Ces Ces	oos Pro	aaa Lys	Asp	954 Als 965	221 220	ost His		9904
٥	ctc cap Let Gln 1970	820	cac	ser ago	Ale	CÇA Pro 1975	acc	tgg Trp	gg¢ Gly	Thr	atc Ile 1980	eee Pro	ana Lys	erg Les	occ Pra	5952
9.	oca cca Pro Pro 1985	Giy	ogo Arg	Ser	cot Pro 1990	t try Leu	gct Ala	cag	Arg	CC4 Pro 1995	ctc Leu	agg Arg	age Arg	Gin	gca Als 1960	6000
5	gca ara Ala Ile	agg Arg	The	gac Asp 2005	ton Ser	ttg Leu	gaq Asp	Val	cag GIo 2010	ggt Gly	ctg Leu	Gly	252	ogg Arg 2015	gaa Giu	6048
Q.	gad otg Asp Leo	1.4812	gca Ala 2020	qaq Glu	gtg Val	age Ser	Gly	ccc Pro 2025	t.cc Ser	erg erg	ecc Pro	Leu	gcc Ala 2030	Arg agg	gee Ala	6096
5	tad tod Tyr Ser	tto Phe 2035	Trp	GIY	caq Gln	Ser	agt Ser 2040	acc Thr	çaq Gln	gca Ala	Gla	caq Gln 2045	osc Bis	ser Ser	ogo	5149
0	ago cac Ser Ris 2050	Sex	aaq	atc	Ser	aag Lys 2055	Ri.s	atg Mat	acc Thr	SLO	cca Pro 2060	gec Ala	820	tge Cys	ona Pro	6192
U	gge cos Gly Pro 2065	gaa Glu	ecc	Asn	tgg Trp 2070	Gly	saq Lys	gge	5.40	cca Vrd 2075	gag Glu	acc Thr	aga Arg	365	8080 8ex	6240
3	tta qaq Leu Sli	ttq Leu	Asp	acg Thr 2085	Glu	ctg Leu	ago Ser	Tro	att Ile 2090	tca Ser	g17 gga	gac Asp	7.90	ctg Leo 2095	200 200	\$288
0	ect ggd Pro Gly	ggc Gly	cag Gln 2100	Glo Glo	gag Glu	ccc Pro	ccs Pro	tec Ser 2105	eca Pro	Arg	gac Asp	ctg	asg Lys 2110	aag Lys	tgc Cys	6336
5	tac ag: Tyr Se:	gtg Val	Glu	gec Ala	cag Gln	Ser	tqc Cys 2120	Gla	ogo	egg Arg	550	acg Thr 2125	tee	egg	ctg Leu	6384
20	gat gad Asp Glo 213	g cag Gln	agg Arg	aga Arg	. cac Ris	tot Ser 2135	ato	goo Ala	gro Val	ago Ser	tgo Cys 2140	ctq	gaq	aqc Ser	ggc Gly	6432
i()	tee oak Ser Gli 2145	n Pro	cac Sis	cag Leu	qqc Gly 2150	aca Thr	gac Asp	000	tet Ser	aac Asn 2155	ctt Lea	ggg	ggc	ca9	cot Pro 2180	8480

37 ost ggg ggg sat ggg ago ogg oct eeg eee aae cit ago otg cot agt 6523 Leu Gly Gly Pro Gly Ser Arg Pro Lyx Lyx Lyx Leu Ser Fro Pro Ser att acc ata gan too cos que ago cas got cot ogg act cog cot ag: The Thr the Asp Pro Pro Slu Ser Gin Gly Pro Asg Thr Pro Pro Ser 2185 cot ggt ato tgt ott ogg agg agg get oog too age gat too aag gat Pro Sly Ile Cys Lau Arg Arg Arg Ale Pro Ser Ser Asp Ser Lya Asp 10 one the gos tet gge one out gan ago and got got the ore the tea 6572 Pro Leu Ala Ser Gly Pro Pro Asp Ser Met Ala Ala Ser Pro Ser Pro and and gat grg org agt one new ggt the too for get ore gos gat Lys Lys Asp Val Leu Ser Leu Ser Cly Leu Ser Ser Asp Pro Ala Asp 20 6729 eto pao ece Lea Asp Pro 25 <210> 5 <211> 6762 <212> DNA <213> Rattus sp. 30 <220> <221> COS <222> (1)..(6762) <400> 5 atg gan gag gag gat gga gon ggo gon gag gag tog gga can con Met Asp Glu Glu Glu Asp Gly Ala Gly Ala Glu Glu Sex Gly Glo Pro ogt ago tro and pag oto aso gat otg ton ggg qoo ggg ggc ogg cag 40 Arg Ser Phe Thr Gin Leu Asn Asp Leu Ser Gly Ala Gly Gly Arg Gin ggg con ggg tog ang gwa aan dar dog ggd agd gdg gan ton gag gdg Gly Pro Gly Swr Thi Glu Lys Amp Pro Gly Swr Ala Amp Swr Glu Ala 45 gag ggg mng beg tac meg geg eta ged beg gtg gtt ttc ttc tac ttg Giu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu 50 ago dag gam ago ogo dog ogg ago tog tog tot non ago aco gto tog asc Ser Gin Amp Ser Aro Pro Aro Ser Trp Cym Leu Aro Thr Val Cya Amn 240 55 ong tog the gag egs gio agt atg ong gir att out one asc tot gig 288 Pro Trp Phe Glu Arg Val Ser Met Leu Val Ile Leu Leu Aso Cys Val act ctg ggt atg tio agg bog tgt gag gae att get tgt gad tot bag 60 Thr Leu Gly Met Phe Arg Fro Cys Glu Asp Ite Ala Cya Asp Ser Glo ego tgo egg and etg eag goo tto par gad tto and the goo the to: 383

Ard Cys Ard Ile Ley Gin Ala Phe Asp Asc Phe Ils Phe Ala Phe Pha

										20							
			113					130					125				
5	905 Ala	geg Val 130	Cist	atq Man	gty Val	gtg Val	339 298 135	atq Met	gig Val	goo Ala	Led	990 617 160	atc 11a	ttt Pha	97 Å 333	aag Lys	430
10	664 Lys 145	tgt Cyn	tac Tyr	erg Leu	ggs Gly	gac Asp 150	ant Tor	tgg Trp	aac Asn	yrg egg	000 Sed 155	gar Asş	tot Phe	ttc Phe	att Lie	gto Val 160	480
10	att	gna Ala	999 Gly	esg Mest	otg Leu 185	gag Glu	tat Tyr	t.cg Ser	ctg Leu	gac Asp 170	ctg Leu	cag Glo	aac Asn	gtc Val	agc Ser 175	ttc Phe	258
15														goc Ala 190			578
20	ogg Arg	gtg Val	000 200 195	ago Ser	atg Met	ogc Arg	att	ctc Leu 200	gto Val	aca Thr	tta Leu	atg Leo	atg Leu 205	gac Asp	acc Thr		624
25	Pro	stg Met 210	ctq Leu	gly	aac Ass	gtc Val	ang Leu 215	ctq Lea	dec less	tqt Cys	tto Pbe	ttc Phe 220	gtc Val	ttt Phe	tto Phe	atc Ile	672
10	ttt Phe 225	GLY	ate	gtg Val	ggc ggc	gtc Val 230	cag Gin	ctg	tgg Trp	gça Ala	gga Sly 235	ctg Leu	att Leu	ogo Arg	asc Asn	ogg Arg 240	720
30	tga Cys	the	ctc Lea	cco	989 Glu 245	sac Asn	ere Phe	age Ser	ctc Leu	000 2ra 258	ctg	agc Ser	gtg Val	gac Asp	ctg Leo 255	gag Glu	768
35	cct Pro	tat Tyr	tac Tyr	Gaq Gin 260	aca Thr	gag	est Asn	gag Glu	gac Asp 265	gag Glu	agc	ecc Pro	tto Phe	atc Ila 270	tgc Cys	tot Ser	315
40	cag Gln	ect	ogg Arg 275	gag Glu	aat Asn	gge Gly	atq	aga Arg 280	toc Ser	tgc Cys	agg Arg	agt Ser	gtg Vel 285	gcc	aca Thr	ctg Les	864
45	ogt Arg	390 393	Glu	gge	ggt Gly	ggt Gly	990 914 295	pro	ecc	tga Cya	agt Ser	ctg Leu 300	gac Asp	tat Tys	gag Glu	acc	912
400	rat Tyr 305	Asn	agt Ser	rec	agc Ser	aac Asn 310	Thr	acc Thr	tgt Cys	gtc Vai	aac Asn 315	tag	aac Asn	caq Gln	tac	tat Tyr 320	960
50	acc	aac	tge Cys	te: Ser	geq Ala 325	Sly	gag Glu	cac	aac Asn	000 920 330	Phe	aaa Lys	ggc	gcc Ala	atc Ila 335	aac Asn	1008
55	ttt Phe	gac Asp	aac Asn	att II: 340	Gly	tat Tyr	goo	tgg Txp	atc Ile 345	Ala	ato	Phe	cag	gtc Val 350	Tle	aca Thr	1056
60	ctg	gag	990 Gly 355	rgg	gtc Vai	gac Asp	ato	atg Mec 360	tac Tyr	t to Pho	gta Val	atq	gac Asp 363	gcr Ala	cac	roc	1104
	tto Phe	tac	aac Asr	ttt	ato ile	tac Tyr	rrc Pha	att Ila	acc Leu	erc Leu	ato	ato	gtg Val	G17 ggc	too Ser	ted Phe	1150

		370					375					380					
ž	ttc Phe 385	atg Met	atc Ile	aac Asn	otç læu	390 Cys tgc	ctq	oto Val	grg Val	Blt	900 Ala 395	acq The	cag Gin	ttc Phy	toc	949 Glu 400	1200
10	acc Thr	aaa Lys	caq Sin	egg Arg	gaq Glu 405	agt Ser	cag Gln	ctg Leu	atg Met	tgg Arg 410	gaş Glu	Cag Glv	og: Arg	gta Val	oga Arg 415	ttc Phe	1248
10	ctg Leu	tee Ser	aat Asn	get Ala 420	ago Ser	acc Thr	ctg Leu	gca Ala	ago Ser 425	tto Pha	tut Ser	989 610	ccs Fra	ggc Gly 430	agc \$07	Ego Cys	1296
15	tot	gag Glu	gaq Glu 435	cta Leu	ata Leu	aag Lys	tac Tyr	ctg les 440	gtg Val	tac Tyr	acc Tle	ere Leu	oga Arg 445	ass Lys	gca Ala	gcc Ala	1344
20	nga Arg	agg A£¢ 450	ong Leu	gec Ala	caş Gla	gtc Val	tot Ser 455	agg Arg	gct Ala	ata Ile	Gly	gt.g Val 460	ogg Azg	get Ala	ggg Gly	Leu	1392
25	ctc Len 465	aqo Ser	ago Ser	oca Pro	gtg Val	gcc Ala 470	cgt Arg	ags Ser	614 999	caq \$ln	gaq Glu 475	970 000	cag Gin	Pro	agt Ser	990 617 480	1440
30															gtc Val 495		1488
30															sog Thr		1536
35															aet Asn		1584
40			Arg												cor		1632
45	gge Gly 545	pro	ecg	agg	ggt	gcg Ala 550	gaq Glu	tet	gta Val	Cac His	agc Ser 555	ttc Phe	tac Tyr	cat 818	gct Ala	gac Asp 560	1686
50	cys	cac His	ttg Leu	gaç Glu	00a 810 565	Val	cgt	tgo Cys	cag Gln	qca Ala 570	ccc Pro	ect	Pro ccc	Arg	tgc Cys 575	oca Pro	1728
24	tog Ser	gag Glu	gca Ala	tot Ser 580	Gly	agg Arg	act	gtg Val	ggt Gly 585	agr	gly	aag Lys	gtg Val	tac Tyr 590	ece Pro	act Thr	1776
55	gtg Val	A12 Ost	acc Thr 595	agc Ser	get	nça Pro	008 920	gag 610 660	ata Lie	ctg	aag Lys	gat Asp	aaa %ya 605	gca Ala	ota Leu	grq Val	1834
60			Ala										Ser		aac Aan		1872
	cca Pro	get	ggg Gly	CCC	etc Pha	age	toc	ato	dad	aaq Lys	ctc	ctq	gaç	aca	Cag Gin	agt	1920

	625					830					633					649	
3	thi	gga gga	ger Ala	tgc Cya	687 818 843	ago Ser	rec Ser	cha edd	aaa Lys	atc fle 650	Ser	ago Ser	ont Pro	ege Cys	200 Ser 685	aag Uys	1965
10	gca Ale	get Asp	agt Ser	660 93.7 93.2	gac Als	tqo Cys	999 617	ero Pro	gac Asp 665	agt Sec	tgt	520 668	272	695 Cya 670	gcc Ala	ogg Azg	2016
.10	aca Thr	gga Gly	gca Ala 675	gga Gly	gág Glu	coa Pro	gag Glu	500 8es 680	get Ala	gae Asp	Cat His	yec Val	atg Met 685	dos Pro	gao Asp	cca šer	2064
15	gac Asp	agc 3er 690	gag Glu	got Ala	Val gcg	tat Tyr	gaq Glu 695	550 866	aca The	caq Gln	gac Asp	get Ala 700	Cag	cac Rís	agt Ser	gac Asp	2112
20	ctc Leu 705	agg Arq	gat Asp	pcc Pro	cac	ago Ser 710	yrg cgg	cgg Arg	oga Arg	caq Gln	egg Arg 715	agc Ser	otg Leu	CTA aac	oca Pro	gat Asp 720	2160
35	gca Ala	Glu	act Pro	agt. Ser	tet Ser 723	val gtg	otg Leu	gct Ala	ttc Phe	tgg Trp 730	Arg	ceq	aça Ile	tgt Cys	gac Asp 735	aca Thr	2208
															atq Met		3250
30	gcc Als	atc Ile	seq Les 755	ged Val	aat Aaq	aca The	ctc Leu	agc Ser 760	atg Net	ggc Gly	att	gag Glu	tac Tyr 765	cac His	gag Glu	cag Gin	2304
33	eee Pro	gag Gla 770	gag Glu	ote Leu	acc Thr	aac Asn	gcc Ala 775	oty Leu	gaa Glu	atc	agc Ser	aac Asn 780	atc Ile	grc Val	tto The	acc Thr	2392
40	aga Ser 785	ctc Leu	tto Phe	gcc Ala	rrq	gag Glu 790	atg Met	stg Lea	stq	aaa Lys	Leu 795	cet	gtc Val	tac Tyr	ggt	ecc Pro 806	2400
45	til Phe	gge	tac	att	aag Lys 805	aat Asn	Pro	tec	aac Asn	atc 11e 810	ttt Phe	gat Asp	ggt Gly	gtc Văl	att 110 815	gtg Val	2448
20	gen Val	arc	agt	gtg Val 820	tgg Trp	gag Glu	att	gtg Väl	ggc Gly 825	cag Gln	cag	gga Gly	ggt Gly	990 919 830	rea	ecq Ser	2496
30	gtg Val	ctg	ogg Arg 835	acc	erc Phe	ege Arg	ctg	atg Met 840	agg Arg	gtg Val	otg Leu	aag Lys	Crg Leu 845	gtg Val	cgc	tra Phe	2544
33															atg Met		2593
60	880 865	Val	gcc Ala	acc	tto	tgo Cys 870	arg	£au	rtc Leú	atg Met	ctg Leu 875	ttc	atm	Phe	ate	ttc Phe 880	2640
																ogg Arg	2688

										»€-3							
					883					890					895		
3	gat Asp	333 51 y	gec Asp	acg Thr 900	teg	cca Pro	gac Asp	ogg Arg	aag Lys 905	eac Asn	tico Phe	gac Asp	pac Sez	etg Leo 910	otd Leo	tg: Tip	2736
14	gee Ala	ato 110	gac Val 918	The	gso Val	ntt Phe	Gin	att 11a 920	ong Deu	act	cag Gin	gaa Glu	gac 839 925	tgg Trp	aat Aan	aaa Lys	2784
29	gto Val	056 593 930	TYT	Aso Aso	ggn Gly	atq Met	goo Ala 933	Sec Sec	ana Taz	raq Ser	ror ser	tqq Trp 940	got Ala	gct Ala	ctt Leu	tar Tyr	2832
15	140 Pha 945	ate	gec Ala	ate Leu	atg Mer	act Thr 950	ttt Pb#	ggc Gly	ABE ASO	tat Tyr	grg Val 985	oko Seu	oos Phe	asc Asn	org Leu	otg Lec 960	2880
20	gtg Val	gcc Ala	arr	ctt Leu	gtg Val 966	gaa Glu	gga Gly	ttc Phe	càg Gln	gea Ala 970	81 <i>p</i> 888	97a 917	gat Asp	goo Ala	acc Thr 975	asq Lys	2928
25	tor	gaq	tca Sex	980 980	eot Pro	gat Amp	tto Phe	ttt Phe	teg Ser 985	ccc Pro	agt Ser	gtg Val	gat. Asp	886 83 A 844	gat Asp	Sly	2976
30	gac Asp	ags Arg	aag 5ys 995	aag Lys	arg	ttg Leu	Ala	669 669 679	gtg Val	get Ala	teg	gga Gly	gee Glu 1005	cac	gcg Als	gaa Glu	3024
30	Leu	oga Aog 1010	Lys	ago Ser	cet	Less	cca Pro 1015	5to	ctc Leu	ato	Lie	tat His 1020	acg Thr	Ala	Ala	aca Th:	3072
35	oca Pro 102	Mar	sca äer	cec Kis	523	aaq Lys 1030	Ser	tec Ser	agc Ser	Thr	ggr Gly 1035	geg Val	ggg Gly	gaa Glu	Ala	ctq Leu 1040	3120
40	ggc	Ser	gi y ggc	Sec	oga Arg 1045	Arg	sec Thr	agt. Ser	Ser	agt Ser 1050	G1y ggg	toc	gct Ala	Glu	ect Pro 1055	Giy	3168
43	gst Ala	goo	His	cat Ris 1080	Glu	atg Met	aaa Lys	Cys	609 Pro 1065	ora Pro	agn Ser	goo Ala	Ang	agc 3er 1070	Sec	bro ccd	3216
<i>50</i>	Ris	Sex	Pro 1075	Try	agt Ser	gcg	Ala	ago Ser 1080	Ser	tgg	acc	Ser	agg Arg 1085	Arg	ted Ser	ago Ser	3244
30		840 Asn 1090	Ser	Led	ggo	Arg	goc Ala 1095	5,20	agc	cta Leu	Lys	cgg Arg 1100	Arg	ser ser	bag	ags Ser	3312
<i>35</i>	999 Gly 110	Glu	ogg Arg	yr3 agg	Ses	209 Leo 1110	Leu	tet	gga	Glu	ggo Gly 1115	Gin	gag Glu	agt Sec	Cag	get Asp 1120	3360
-60	gag Glu	gaç	gas Glu	agt Ser	tea Ser 1129	63.0	gaq Glu	gac	arg Arg	gcc Als 1130	Sex	eca Pro	gca Ala	Gly	5es 1135	gas Asp	3408
	cat His	ego	cac His	aqq Arq	ggs Gly	500	ttg Lev	gaa Glu	agt Arg	gag Glu	gcc	aag Lys	egt Set	520 Sex	Pne	gab Asp	3456

	1140	1.	145	1130	
3	ung cot gad act of Lev Pro Asp The I 1155	tog cag grg ceg (Leu Gin Vai Pro (1160	ggg ot; cat Gly Leu Ris	egr aca god ago g Arg Th: Ali Ser G 1165	3: 3504 ly
10	ogg ago tot gos t Arg Ser Ber Ala 3 1170	tot gag bad caa (Ser Giu His Gln) 1175	Asp Cys Asn	ggo aag rog got t Sãy sya Sar Ala S 186	oa 3552 er
30	ggg cot ttg gcc t Gly Arg Lev Ala / 1185	ogs aco sig agg a krg Thr Leu Arg : 1190	act dat dec Thr Asp Asp 1195	ere caa ere gat g Pro Gin Las Asp G }?	ly
15	Asp Asp Asp Asn &	gat gag gga sat : Asp Glu Gly Ase 205	otg agc ess Leu Ser Lys : 1210	ggg gaa cgn atá c Gly Glo Arg Ile C 1815	es 1649 ln
20		Ber Arg Lau Pro J		cgs gay cga qat t Arg Glo Arg Aap S 1230	
25				tti ogt ctc ctg t Phe Arg jeu Leu C 1285	
30	cac cgg atc atc : Bis Arg lie lie : 1250	ace oac aag atg : Thr His Lys Met : 1755	Phe Asp His	gtg gtc ctc gtc a Val Vel Leu Val I 360	to 3792 le
W.17	acc ttc ctc asc ! Ile Phe Leu Asn ! 1265	tgt atc acc atc : Tys Ile Thr Ile : 1270	got ato gag Ala Net Glu 1275	ogo oco aaa ett g Arg Pro Lys Ile A 12	ap qe
35	Pro His Ser Ala (gaq ego ato tto : Slu Arg Ile Phe : 286	ctg atc ctc Les Thr Les 1290	tdo aac tec atc t Ser Asc Tyr Tle P 1295	rc 3888 he
40	acg gos gto tit (Thr Ala Val Fhe) 1300	Leu Ala Glu Mat '	aca grg aag Tor Val Lys 305	gtg gtg gca ctg g Vai Vai Ala Leu G 1316	gc 3936 ly
45	tgg tgc ttt ggg (Trp Cys Phe Gly (1315	gag eag gec tac : Slu Gln Ala Tyr : 1320	ctg cgc age Leu Arg Ser	ago tgg aat gtg o Sen Trp Asn Val L 1325	tg 3984 eu
30			Val Ile Asp	ato org gro rom a Tie Leu Vel Ser M 1340	
70				ctg agg grg ctg c Leu Arg Val Leu A 13	rg
35	Leu Leu Arg Thr			age egg gee eag g Ser Arg Ala Gin 9 1375	
60	org aag org grg Leu bys les Val 1380	Val Glu Thr Leu	atg toa too Met Ser Ser 385	Ctc ase ctc att g Leu Lys Pro Ile G 1390	gc 4176 Ly
				arr tri ggs att 3 Ile Phe Gly Tle L	

43 1395 1400 4273 ggg gig dag oto tto has ggg and the two gld tot cod ggt gag gad Gly Vel Gin Les Poe Lys Gly Lys Phe Phe Vel Cys Gin Gly Gla Asp 4320 att agg aso are act sac eas tot gat too got gag got age too ogs The Arg Aco fie The Aso Lys Ser Asp Cys Ala Glu Ala Ser Tyr Arg 1425 1435 tgg gtc cgg cac aag tac aac tit gac aac ctg ggc cag gct cig atg 4368 Trp Val Arg Ris Lys Tyr Asn Phe Asp Asn Leu Gly Gin Ala Leu Met 15 4416 too oug tit gug oug god too eag gat ggt tag gut gam and ang tat Ser Lon Phe Val Leu Ala Ser Lyx Asp Gly Tro Vel Asp Hie Met Tyr 1465 gat ggg ctg gat gct gtg ggt gtg gat dag dag dol ard atg aad dac Asp Gly Leb Asp Ala Val Gly Val Asp Gln Gln Pro Ile Mat Aso His 4454 20 1480 and one egg and one one has the and the the one one and gig por Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile Val Als 25 4560 tto ttt gro etg aac atg ttt gtg ggc gtg gtg gtg gag aac ttc cat Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glo Asn Phe His 1505 1510 1515 30 8608 35 ang cga cia cgg agg ctg gag ann ang aga agg agt aag gag aag cng Lys Arg Leu Arg Arg beu Glu Lys Lys Arg Arg Ser Lys Glu Lys Gln 4656 1360 4704 and doc dea doc oad not say occ has her hot day had not age the Met Ala Glu Ala Gln Cys Lys Pto Tyr Tyr Ser Asp Tyr Ser Arg Phe 40 ogg one out gue can can out tot acc ago can tan out gan out una Arg Leu Leu Val Bis Bim Leu Cys Thr Ser Bis Tyr Leu Asp Leu Phe 45 atc act not get atc ggg org aac gtg gtc act atg gec atg gas cat 4800 lle Thr Gly Val Ile Gly Leu Asn Val Val Thr Met Ala Met Glu His 1590 1895 50

tac dag dag med dag and deg gad gag get etg aag ate tgd sat fac Tyr Gin Gin Pro Gin lie Lee Asp Giu Ala Lau Lys lie Cys Aso Tyr

ato ten acc gec acc ttt gtc ten gag toa gtt ttc ass ctt gtg gan The Phy Thr Val The Phy Val Phy Glu Ser Val Phy Lys Leu Val Als

tit ggo and ego agt tit tit cag gan agg tig eat dag cit gad at;

Phe Gly Phe Arg Arg Phe Phe Glé Asp Arg Trp Ash Glí Leú Asp Lei 1635 1640 1645 got att gtg ott ang noc ató atg ggó atm aca ong gag gag ast gag

Als the Val Ley Ley Ser lie Met Gly Jim Thr Ley Gla Glo lie Glu

55

60

1610

4848

4895

4944

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	166	e de			1635				3	ero					
			# in the last				11441 17	200			a a 1	mh es	androne.	5 m A	504
5	yet as Yal As 1665	n Leu	Ser 1	Leu Pro	Tie	Asn	Pro	The	119	île	Arq	116	Me		304
	gug ct Val Le	o ugo u Arg	Tin 1	got og: Ala Ary SBS	gtt Val	ctg Leu	Lys	ctg Lea 1690	ttg Leu	eag Lys	atq Net	Ala	gng 741 695		508
10	atg og Met As	g gca g Ala	ctg : Leu 1 1700	ong can Leu His	e acg	Val	atg Mat 1705	cag Gin	gee Ala	ot g Lea	Pro	Geg Gin 1710	gig Val	giy ggg	533
15	asc or Ass Lo	g gga u Gly 1715	Leve 1	cee tro Leu Pbe	e Met.	tta Leu 1720	1944 1444	ttt Phe	tto Phe	130	000 Phe 1725	ges Ala	gca Ala	ctg LeG	518
20	GIA As dia da	i Glu	oto i Leu i	ttt gg: Phe Gl:	gac / Asp 1735	org Let	gag Glu	tgt Cys	Aso	gag Glu 740	aca Thr	nac 81\$	aat Pro	ege Cys	9230
25	gag gg Glu Gl 1745	ra tog y Leo	ggt d Gly I	ogg cat Ang Ris 1750	s Ala	acc Thr	tit Phe	Arg	aac Aso 1753	ete Phe	ggt Gly	atg Met	Ala	151 25e 760	5280
30	otq ac Leu Th	o oto	Phe i	cga gto Azg Ya: 765	toe L Ser	act The	Gly	gac Asp 1770	aac Asn	trp	aat Asn	619	att 11e 1775	atg Met	5321
,,,	ang qa bys As	n ann p Thi	Leu i 1780	ogg ga: Arg As	c tgt c Cys	gac Asp	cag Gin 1785	gag Glu	toc Ser	soc The	tgc Cys	tan Tyr 1790	aac Ass	act The	537
3.5	gtc at	c ttc e Ser 1795	Pro	ato tas Fle Ty	r tet r Phm	gtg Val 1800	too Ser	ttc Pbe	gtg Val	otg Leu	acg The	gcc Ala	cag Gln	ttt Phe	542
40	grq ct Val Le 181	u Val	aac . Asn '	qtq qt: Val Va	o sta l Ile 1815	Ala	gtg Val	ctg Leu	Met	aag Lya 820	cae 819	ong Leu	gaa Glu	gaa Glu	547
45	agc as Ser As 1925	no aas no Lys	gag Glu	gct aa Ala Ly 183	s Glu	gag Glu	gcc Ala	Glu	cto Leu 1935	gag Glu	gcc Ala	gaq Glu	Leu	gaç Glu 1840	552
50	ctg ga Leu Gl	ig atq u Met	Lys '	acq cto The Les 945	c ago u Ser	203 203	Gla	200 Pro 1830	cac His	too	920 920	Leu	ggc Gly 1855	ago Ser	5561
30	bod ti Pro Pi	e Cer	tgg Trp 1860	sså gg Pro Gl	g gtg y Val	gaq	ggt Gly 1865	gto Val	aac Asn	agt Ser	act The	gac Asp 1876	agc Ser	ect Pro	561
55	aag o: Lys Pi	t agg to Gly 1875	Ala.	cca ca Pro Bi	s The	act Thr 1890	·Ala	Cac Nis	att	Gly	gca Ala 1885	goo Ala	cog Ser	ggc Gly	566
60	ttc to Phe So la!	er Len	geg Glu	cac co His Pr	o acq o The 1895	Mer	gta Val	ccc	HLS	2ro 2ro	gag Glu	310 389	grg Væl	cca Pro	571
	gth co Val Pr	ac éta ro Les	gga Giy	cca ga Pro As	c etg	czą Leu	act	gtg Val	agg Arg	rys	tet	ğgt. Gly	Çtal Val	agc Sec	576

45 1970 1905 1910 1915 cog and name too one ast gar ago had any top ago his gag ago 5806 And The His Sex Led Pro Asn Asy Ser Tyr Met Cyc Any Ash Siy Ser 1925 ect got gag aga too ota gga oso agg ggo tgg ggg oto ooz asa gcc The Ala Giu Arg Ser Leu Gly His Arg Gly Tro Gly Leu Pro bys Ala 1940 1990 5888 10 5904 cag toa ggo too ake try too git dae too baa coa gea gac ace age Gin Ser Gly Ser Ile Leu Ser Val His Ser Gin Pro Ale Asp Thr Ber 1955 15 tgo ato ota cag chi con asa gat gtg cad tal ong onn cag con can 5952 Cys Ils Leu Glo Leu Fro Lys Asp Val His Tyr Leu Lau Glo Pro His yeg out ook and toy god ook ats oot ass ste ook ous oot ook ook 6000 20 Gly Ale Pro Thr Trp Gly Ala Ile Pro Lys Leu Pro Pro Pro Gly Arg 1990 tod con one get may agg och one agg ogs dag goa and agg ant Ser Pro Leu Ala Glo Arg Pro Leu Arg Arg Glo Ala Ala Ila Arg Thr 25 2010 2005 gad too ofg dat gtg dag ggd otg ggt agd ogg gas gad otg ttg too Amp Ser Leu Amp Val Gin Gly Leu Gly Ser Arg Glu Amp Leu Leu Ser 2020 2025 8098 30 gag gtg agt gag oon oon ton tge oot otg ann ogg ten tea too bto tgg Glu Vai Sar Gly Pro Ser Cys Pro Leu Thr Ang Ser Ser Ser Phe Trp 6146 2040 35 990 999 tog ago atm cay grg cag dag ogt tom ggo ato cag ago aas 6193 Gly Gly Ser Ser Ile Gln Val Gln Gln Arg Ser Gly Ile Gin Ser Lys gto too and one att ego org con got cot tgo con ggs org gan occ 6240 10 Val Ser Lya His lie Arg Leo Fro Ala Fro Cys Pro Gly Leo Glu Pro 2065 2075 2080 ago tigg goo asy gao bot cox gay aco aga ago ago tia gay big gao Ser Trp Ala Lys Asp Pro Pro Glo Thr Arg Ser Sor Leu Glo Leu Asp 2090 6336 ang gag ong ago ngg att noa gga gan one ent con ago ago cag gas The Giu Leu Ser Trp Ile Ser Giy Asp Leu Leu Pro Ser Ser Gin Giu 50 gas ode etg tto cos ogg gas otg aag aag tgo tan agn gta gag acc 6384 Ola Pro Leu Phe Pro Arg Asp Leu Lys Lys Cys Tyr Ser Vel Glu Thr 55 cay ago too ago ogo ago oot gog sto tog eta gat gas cay ogo aga Gln Sex Cys Arg Arg Arg Pro Gly The Trp Leu Asp Glu Gla Arg Arg cac tet att ger gtd agd tyr dig gad agd ggd tot daa doo ogd obs Ris Ser Ile Ala Vel Ser Cys Leo Asp Ser Gly Ser Gin Pro Arg Leo 6480 60

kgt oom age een tem age ete gog oge emm eet ett gog get eet gog - 6528 Cym Pro Ber Pro Sax Sex Leu Giy Gly Glo Pro Leu Giy Gly Pro Gly

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										-4.04							
				2	169				ä	170				3	175		
5	ago Sem	713 233	220	889 Lys 180	aaa Lys	aas Lys	010	Ser	cca Pro 1185	asc Pra	agt Ser	acc	Sex	ata Ile Ile	gali Asp	ecc Pro	6576
10	620 620	613	ago Ser 155	çaq Gin	qqc Gly	tot	Axg	200 019 005	coa Pro	cga Cys	ser agi	800	99t 61y 2205	gtc Val	tyc Cys	con Les	6624
10	Arg	agg Arg 215	agg Arg	gcg Ala	eeq	Sis	agt Ser 215	gac Asp	tet Sez	aag Lys	App	000 200 220	tog Ser	gtt Val	toc Ser	agc Ser	6672
15	2225	1.90	gac Asp	agc Ser	Thr	got Ala 230	gec	toa Ser	ece Pro	Sex	oos Pro 2235	aaq Lys	888 198	gat Asp	The	crg Leu 2240	6720
20	agt	cec Lss	tot Set	Gly	ttg Leu 245	tot Ser	rol Ser	gac Asp	008 Peq	aca Thr 2250	gac Asp	atq Met	gac Asp	eec Pro			6762
25	<21.2	> 61 > De		3 ab													
30		(2)	08	(679)	5)												
35	<400 atg Met i	cac	gag Glu	gağ Glu	gag Glu S	gat Asp	gga Gly	gog	ggc Gly	gec Ala 10	gag Glu	gag Glu	coq Ser	gga Gly	caq Glo	000	48
40	agr	agc Ser	tto Phe	acq Thr 20	cag Gln	arc	aac Asn	gac Asp	stq Leu 25	roc	999 619	god Ala	ggg	ggc Gly 30	cgg Arg	Gin	.96
45	ei X aaa	900 920	999 Gly 35	tog Ser	acg Thr	gaa Glu	aag Lys	gac Asp 40	sta	gy A ååc	agc Ser	gcg Ala	gac Asp 45	tee	gag Glu	gog Ala	144
**	gag Glu	999 Gly 50	crq	ecg	tac Tyr	00g	gcg Ala 55	ora Leu	gcc Ala	Pro	gtg Val	gtt Val 60	tto Phe	tto Phe	tac	ttq Leu	192
50	age Ser 65	cag	gac Asp	agc Sar	ege Arq	ecq Pro	arg	age Ser	tgg	tgt	cec Seu 75	ege Arg	acg Thr	gtc Vai	tgt Cys	asc Asn 80	240
55	Pro	cgg Trp	the Phe	Glu	cgs Arg 85	gtc Vai	agt	at.g Met	Len	gto Val 90	att	Leu	orc Leu	aac Asr	Cys 95	yal Val	288
60	act The	rep	Gly	ang Met 100	574	agg Arg	Pro	t gt Cys	gag Glu 105	485	stt ell	gge	tgt Cys	gaz Asp 110	2.8%	Gln	368
	ogo Arg	cys	egg Arg	116	atq	Gln	goo	Phe 120	Asp	gac	ttc Phe	ato	ttt Phe 125	ALA	t.t.c	to: Phe	384

S	act	910 Val 130	gaa Glu	eta Mer	909 Val	gtg Val	aag Lys 135	atg Max	gsg Val	gcc Ala	beg Let	990 61y 146	nin	Phe	ggg Gly	aag Lys	432
~	244 Lys 145	tgt Cys	Tyr	ctg Led	gga Gly	gac Asp 150	act Thr	tas Trp	aac Asn	grā cād	ert Leu 188	gac Asp	cot cha	tro Sha	acc	gto Vel 160	480
10	art	gca Ala	999 91y	arg Met	ckg Leu 165	gaç Glu	tat Tyr	reg	etg Lea	gac Asp 170	ctg Len	ÇAÇ Gin	eac Asn	Val gec	agc Sex 175	uta Pne	528
13	šer too	gca Ala	gt.c Yal	agg Arg 180	aca Thr	gto Val	ogt Arg	gng Val	org Leu 185	cga Arģ	Sto aca	ctc Leu	agg Arg	gcc Ala 190	E14	aac Asn	\$76
20	yxd cdd	grg Val	000 Pro 195	agc Ser	atq Met	yr3 cdc	att	ctc Leu 200	gro Val	aca The	tta Leu	neu chò	org Leu 205	gac Asp	acc Thr	ttg Leu	624
25	cct	atg Met 210	ctq Leu	ggc Gly	asc Asn	gtc Val	ong Leu 215	ctg Lou	ctc	tigt Cys	tro Pne	eca Pha 220	gtc Val	ett Phe	end Pne	atc Ile	672
23	tte Phe 225	Sly	atc Lie	gtg Val	ggc Gly	Val gro	cag Glp	Leu	tgg Tep	gca Ala	gga G1y 235	ctg Leu	cot Leu	oge	Aso	246	729
30	tgc Cys	tta Phe	sco	\$20 000	gag Glu 245	aac Asn	ttc Phe	ago	ctc Leu	ggq 9ro 250	ctg Leu	aqe Ser	gtg Val	gac Āsp	otg Leu 255	gag Glu	768
35	eet Pro	tot Tyr	toc	caq Gin 260	aca Thr	gag Glu	aat Asp	gag Glu	gac Asp 265	gag Glu	agc	000	tto Phe	atc 11e 270	tgc Cys	tor Ser	616
40	cag Gin	Pro	099 Arg 275	Glu	aat Asn	ggc	atç Net	aga Arg 280	sec Ser	tgc Cys	agg Arg	agt. Sex	gtg Val 285	6to	aca Thr	otg Leu	864
45	ngi Arg	999 61y 290	Glu	ggg	gg: Gly	ggt Gly	990 919 295	820	pro	tgc Cys	agt Ser	ctg Leu 300	gac Asp	tat	gag Giu	acc Tox	,912
42	tat Tyr 305	aac Aan	agt Sec	tee	agc	aac Asn 310	acc	acc	ege Cya	gtc Val	aac Asn 315	Trp	aan Aso	nag Gln	rac Tyr	tat Tyr 320	960
30	acc Thr	aso	tgo Cys	rot Ser	gog Ala 325	ggo Gly	gaç Glu	His	aac Asn	ecc Pro 330	ttm Phe	aaa Lys	ggc Gly	gtc Ala	235	888	1008
33	tet Phe	gad	aac Asn	att Ile 340	Gly	tat	goo	Lak	ato 11e 345	Ala	atc	ttc Phe	cag	gtc Val 350	lle	aca Thx	1056
60	ctg Leu	gaq Glu	ggo Gly 355	Tro	gtc Val	gac Asp	atc	800 800	Tyr	ric	gta Val	atq Met	gac Asp 363	Ala	cac Sis	ser ser	1104
	t t c Phe	1370	Ass	ttc Phe	atc	туг Туг	Tic Phe 375	11.0	les	ctc Leu	ato	ato Ile 380	Ya1	ggc	te: Se:	rte Pbe	1150

2	too Phe 385	aig Met	acc 11e	aac Ass	ang Leu	tgc Cys 390	ctq Lee	gog Val	gt 3 Val	ett 11e	got Ala 395	acg Thi	01c	rsa Pha	500 500	989 610 400	1200
j	ecc Thr	aas Lys	cag Gln	yrg	gag G15 405	açı Ser	oag Glo	any Leu	atg Met	agg Arg 410	gaq Glu	cag Gin	Arg	des des	098 Arq 415		1248
10	ctq Leu	too Ser	aat Aso	gct Ale 420	agc Ser	acc	res	gca Ala	agc Se: 425	rtb Phe	not Ser	gag 61u	eca Pro	430 61 y ggc	agc Sar	ege Cys	1396
15	tat Tyr	gaş Glo	989 616 435	Cta Leu	otc Leu	aag Lys	tac Tyr	ctq Lea 440	gtg Val	tac	ato	oto Seu	oga Arg 445	PAZ FFZ	gca Als	gcc Ala	1344
20									gct Ala								1392
2.0									ggg								1440
25	agc Sex	tqc Cys	act Thr	agc Arg	505 Sec 485	cac Nis	egt	sgt Årg	ctq	tot Ser 490	que Val	cac His	cac Kls	ctg	gtc Val 495	cac Bis	1488
30									tac Tyr 505								1538
35	aga Arg	grc Val	ecc Pro 515	egg Arg	geo Ala	ser	cce	gag 610 520	átc Ile	cag Gin	gac Asp	agg Arg	gat Asp 525	gac	aat Asn	grà ååå	1584
40	ter	ogc Arg 530	Arg	ctc Les	atg Met	ata Leu	00a 9ro 935	oca Pro	500 200	tet Ser	aca Thr	occ Pro 546	Thx	cca Pro	ser	ggg Gly	1637
46	990 617 545	oct Pro	009 Pro	agg	ggt Gly	gcg Ala 550	Glu	tot Sez	gra Val	cac	agc ser	tto	tac Tyr	est His	got Ala	gac Asp 560	1680
45	t gc Cys	cac 8is	ttg Leu	gaq Glo	008 Pro 565	Yal	ogt	tgc Cys	Cln	gca Ala 570	SLO	Pro	çcc Pro	aga grA	tgo Cys 575	520	1728
50	tog	gag Glu	gos Ala	tet Ser 580	Gly	agg	act	gtg Vai	ggt Gly 585	Ser	999 999	aag Lys	gtg Val	tax Tyr 590	920	act	1776
žž	grq Val	cat	acc Thr 595	Ser	ect Pro	cca Pro	cca Pro	gaq Glu 600	Ile	beu	aag	gat Asp	aaa Lys 605	Ala	cta Leu	geg	1924
60	gin ded	grg Val	Ala	goo	ago Ser	Peo	999 Giy 615	220	ecc Pro	acc	Len	acc Thr 520	Sec	tro Phe	Asn	atc	1872
	00a Pro 625	Pro	999 Gly	520 000	Pne	Ser 630	Ser	atq Met	Cac His	Lys	ten 635	1,001.	gaq Glu	ana Thr	gaq Gl:	agt Sec 640	1920

	Syr.	99a 91y	gen Ala	tgc Cys	cat Ris 845	ag: Ser	ger	ega Oya	asa Uys	118 650	Ser	ago Ser	eer Pes	Cys Cys	500 656	289 298	1968
3	gca Ala	gar Asp	agr Sez	998 619 660	gee Ala	tgc Cys	ggg	Pro Ced	gac Asp 665	ser Ser	tgt Cys	200	ta: Ty:	ngti Cys 670	geo Ala	agg	2018
10	aca The	gga Gly	gca Als 675	gga Gly	gag Glu	cce Pro	gag Glu	500 8er 690	got Ala	gac Asp	cat His	gtc Val	acg Met 681	ant Pro	gac Asp	boa Ser	2064
15	gac Asp	agc 8er 690	gag Glu	gct Ala	gog Val	iat Tyr	989 Glu 695	nno Phe	aca The	caq Gin	qac Asp	get Ala 700	cag Gin	818	agt Ser	gac Asp	2112
20	ctc Leo 705	agg Arg	gat Asp	ecc Pro	cac Aus	aqc Ser 710	oog Azg	ogq Arg	oga Arg	sag Gln	ogg Arg 715	ago Ser	otg Leu	gyñ ââs	203	gat Asp 720	2160
25	gca Ala	gag Glu	Pro	agt Se <i>t</i>	tet Ser 725	yal Yal	ctq	gct Ala	ttc Phm	tgg Trp 730	yrd	rea rea	arc Nin	Cha	gac Asp 735	aca Thr	2208
	tto Phe	ogg Arg	eeg Lys	acc 119 740	qta Val	gat Asp	agc Sec	aaa Lys	rac Tyr 745	ttt Phe	ggc Gly	agg	gga Gly	atc Tle 750	ang Met	acc	2256
30	gct Ala	atc fly	ceg Lev 755	gto Val	aat Asn	aca	ctc	aqc Ser 760	arg Net	Gly ggs	ats Ile	gaq Glu	tac Pys 765	cac His	gag Glu	Cag Gin	2304
33	810	gag Glu 770	gag Glu	cto Leu	acc	aac Asn	gcc Ala 775	ctg Leu	gaa Glu	atc	egc Ser	aac Asn 780	ato	gno Val	tte Phe	acc Thr	2352
40	sgc Ser 785	2.813	par eate	gcc Ala	ttg Len	gag Glu 790	atg Mes	orq Leu	arq Leu	aaa Lys	ctq Leu 795	Ctt Leu	qtc Val	tac Tyr	ggt Gly	ecc Pro	2400
45	ttt	Giy	tac	abr	aag Lys 805	Asn	920	tac Tyr	aac Asn	stc Fle BIO	ttt Phe	gat Asp	ggt	gee Val	art Tle 815	gtg Val	2448
	qtc Val	sto	agt Ser	gtg Val 820	tgg Trp	gag Glu	att	grq Val	gge Gly 825	Cag Gln	Cag Gls	gga Gly	ggt Gly	830 817 88c	ctg Leu	Ser	2496
50	gtg Val	stq Lea	egg Arg 835	acc	ttc Phe	ege Arg	ctg Lau	arg Mer 840	agg	gtg Val	otg Leu	aag	Ctq Leu 845	gtg Val	arg	ttc	2544
55	Ctq Les	ecq Pro 859	Ala	at g Lea	-cag Gln	Arg	Cag Sin 855	ctc Lmu	gtg Val	gtg Val	ten	atq Mer 880	aag	acc	atg	gac gac	2592
60	880 880 863	Val	gen Ala	acc	tto	tgc Cya 870	atq Met	ten	ctc	atg Met	cts Les 875	Phe	arc	Phe	ile	980 986	2640
	agc Ser	rie	Ctq	ggc	atg Met 885	813	teu	eti ehe	agt 31y	Ego Cys 890	Lys	Etc Phe	gca Ala	tot Sax	988 999	yrd odd	2566

3.	gat	G17 G17	gac Asp	acq 7hr 900	tig lau	540 CC 8	gec Alp	agg Axg	959 959	aec Ass	tta Pos	gab Asp	ser Ser	019 Lev 510	dite Date	tgg Tep	2730
<i>J</i> -	gco Ala	atc Tle	gto Val 915	sot Tar	gio Val	tc: Phe	cag Gin	att 11e 920	stg Leu	thr.	chg Glo	988 919	gas Asp 925	Egg Tep	788 285	aaa Lys	2784
10	gec Val	otc Leu 930	tac Tyr	aac Asq	ggc 6ly	atg Met	psc Ala 935	toc. Ser	aca Thr	tog Ser	tet Ser	177 270 940	gdi Ala	920 920	ont Leo	tac Tyr	2832
13	tto Phe 945	arc Ile	gcc Ala	ese Lau	acg Nec	act Tor 950	ttt Pbe	ggs	aac Ass	tat	gtg Val 955	ctc Len	ttc Phe	aac Aac	ran tad	cts Lea 960	2880
30	Val	goc Als	arr 11e	ctt Lau	gtg Val 965	gaa Glu	gga gly	ttc Pne	caq Gln	qca Ala 970	gaq Glu	gga Gly	gat Asp	Y1s gcc	acc Thr 975	aag Lys	2928
25	tot Sec	gag Gau	tea Sar	gaq Glu 980	cet Pro	gat Asp	ttc Phe	ttt Pho	tog ser 985	ccc	agt Ser	gtq Val	gat Asp	990 617 991	gat Asp	Gly 999	2976
is at	gac Asp	ags Arg	889 Lys 995	aaq	cgc	ttg Leu	Ala	etg Leu Looo	gtg Val	got Ala	ttg Leu	Gly	gaa Glu 1005	080 818	gsg Ala	gaa Glu	3024
30	Leu	ega Arg 1010	aaq Lyş	ago Ser	att Leu	Leu	cca Pro [015	Pro-	ctc	ato	Tie	cat His 1020	aog The	gct Ala	gcq	aca Thr	3072
33	gga Pro 102	\$88. t	toa Ser	eac Sis	Pro	aag Lys 1030	aqe Ser	toc Sér	agc Ser	Thr	ggt Gly 1035	rey grg	g1y ggg	gaa Glu	gca Ala	ctq Lea 1040	3120
40	Gly	tot Ser	ggo Gly	Sec	ega Arg 1045	egt Arg	acc Thr	agt. Ser	Ser	agt Ser 1950	61y	tcc Sec	get Ala	Giv	oot Pro 1055	gga Gly	3166
45	get Ala	geo Ala	Ris	cat Sis 1060	gag Gju	atg Met	aaa Lys	Cys	cog Pro 1065	Pro	agt Ser	gcc Ala	Arg	aqc Ser 1070	tes	cog Pro	3216
	CAC His	Ser	occ Pro 1075	Trp	agt Ser	gcg Ala	Ala	aça Sər 1080	age Ser	tgg Tep	The	Set	agg Azg 1085	ogc	ser	agc Ser	3264
50	Arg	aac Asn 1090	Ser	org Leu	ggo Gly	Arg	gcc Ala 1095	Pro	ser ser	cta	Lys	ogg Arg 1100	agg Arg	ago 3er	&to ccd	agc Ser	3312
33	999 61y 110	334	Arq	agg	Sor	cig Leu 1110	org	Ser	gga Gly	Glu	gga Gly 1115	Glo	6)u	agt Ser	daq Gln	gat Asp 1120	3360
60	gag Glu	gag Glu	gaa Glu	Sar	tca Sar 1125	Glu	gag	gae Asp	Arg	gcc Ala 1130	ago	cca	gca	Sly	agt Ser 1135	gas Aap	3409
	Mis	ege	81.8	agg Arg 1140	GLY	too \$er	Leu	Glu	egt Arg 1145	Glu	goo	aag Lys	Sec	tec 5er 1150	546	gac Asp	3456

51 cty cot gad act etg dag gog tog ggg ctg dad ogd ada got agd ggd Les Pro Asp Thr Let Gin Vel Pro Gly Les His Arg Thr Ala Ser Gly 1155 ong ago tot got tot gag oad dad gad tot aat ggd aag ton got tot Ang Ser Sar Ala Ser Glu His Gin Asp Cys Aso Gly Lys Ser Ala Ser 3552 3600 10 ggg cgt tig gon ogn ann big agy act gat gat det daa otg gat ggg Gly Arg Leu Ala Arg Thr Leu Arg Thr Asp Asp Pro Glo Lau Asp Gly 1190 1195 3648 ust get gar san gat gag ggs set ong ago ses ggg gas ogs and cae Asy Asp Asp Ash Asp Glu Gly Ass Leu Ser Lys Gly Glu Arg Ile Glo one tog ate aga toe egg oft out goe tog toe oga gag can gat toe 3696 Ala Tep Val Arg Ser Arg Leu Pro Ala Cys Cys Arg Giu Arg Asp Ser 3744 tog tog got tat are fit ook out tag toa ago tit ogt utd tig tigt Tip Ser Ale Tyr lie Phe Pro Pro Gin Ser Arg Phe Arg Leu Len Cys 3792 car egg ato ato ace car asg atg its gae can gig gid one gid atc Wie Arg Ile Ile Thr Ris Lys Met Phe Asp Ris Vel Val Leu Vol 116 30 ato sto one ago tgs ato acc ato get ang gag ogo opo aga att gas The Pha Lau Asn Cys The Thr The Ala Met Glu Ang Pro Lys The Asp 3846 occ ear age got gag ego ato the org acc oto too ase tac are the 3888 35 Pro His Ser Ale Glu Arg Ile Phe Lou Thr Leu Ser Asn Tyz Ile Phe 3936 acq gos gto tot ots got gas atg and gtg sag gtg gtg gos otg ggc Thr Als Val Phe Leu Ale Giu Mat Thr Val Lys Val Val Ala Len Gly 40 1300 3983 tgg tgc ttr ggg gag cac goo tac ctg cgc age age tgg aat gtg ctg Tro Cýs Poe Glý Glú Glá Ála Tyr Leu Arg Sêr Ser Tro Aen Val Leu 1315 - 1320 1325 1315 -45 gae ggc tig ctg gtg ctc atc tcc gno atc gac atc ctg gtc tcc atg 4032 Asp Gly ben ben Val Lau Ile Ser Val Ile Asp Ile Leu Val Ser Met 1330 1335 1340 50 4080 gto too gan ago ggo aco asg ato ott ggo atg otg agg gtg otg ogg Val Ser Aep Ser Gly Thr Lys the Leu Gly Met Leu Arg Val Leu Arg 1345 4128 ong ong ong acc ong ont one one agg gho atc ago ong noo deg gga Leu Leu Arg Thr Leu Arg Pro Lew Arg Val Ile Ser Arg Als Gin Gly org and org gits gits gag and org and ton too oto ass one are ggo Lou Lys Leu Val Val Glu The Lou Met Ser Ser Leu Lys Pro Ile Gly 1176 617 1395

and all grig goo att tgc tgt god the the ote att the ggs att ote Am Ile Val Val Ile Cys Cys Als Phe Phe Ile Ile Fhe Gly Ile Len

1400

1395

5	999 919 G17 Vai 1410	Gin	sto Leu	854 854	Lys	999 Gly 415	aaq Lys	rto Phe	tto Pha	Val	191 Cys 420	ceg Gln	Giy apr	gag Slu	gas Asp	4272
	acc agg The Asg 1425	Asn	ile:	Thr.	aad Aso 430	aaa Lys	toc	gac Asp	Cys	90t Ala 435	gag Glu	gre Ala	age Ser	Tyr	oge Arg 440	4320
10	tgg gtc Txp Val	Arg	His	eag Lys 445	tac Tyr	aac Asn	t t t Phe	day	Asc 450	atq Leu	Gly	Gin	Ala	ctg Lev 455	atg Met	4368
15	ecc stg Set Lea	Phe	ghg Val 460	ctg Leu	gcc Ala	tuc Ser	1.43	gat Asp 465	ggt Gly	Trp	gtt. Val	830	850 Ile 470	atq Net	tat Tyr	4416
20	get ggg	ctg Lau 1475	gat Asp	got Ala	gtg Val	Gly	gtg Vel (480	gat Asp	Gag Gin	Cag Gln	Pro	atc 119 485	atg Mat	aac Ase	cac Nis	4464
25	880 000 880 Pro 1490	Tro	atg Met	cug Leu	Leu	tac Tyr 495	rto	arc Tie	toc Ser	\$ 17.48	ctc Leu (500	ctc Leu	atc Tie	gtg Val	gee Ala	4512
•	tto ttr Phe Phr 1305	gto Val	ctg Leu	aac Asn 1	atg Met 510	ttt Phe	gtg Val	er adc	gtg Val	gtg Val S1S	grç Val	Çlu Çlu	aac Asn	tto Phe	Cat His 520	4560
30	aag ngc Lys Cys	age Arg	Gin	can 81s 525	caq Gln	gaq Glu	gag Glu	Giu	gag Glu L530	gog Ala	agg Arg	ogg Arg	Arg	gag 01u 535	gag Glu	4698
35	aag cgs	Leu	agg Arg 1540	agg Arg	ctg Leu	gag Glu	Lys	aaģ Lya 1545	aga Arg	Arg	aat Asn	1.80	atq Met (550	pen pen	gac Asp	4656
40	gat gte Asp Vol	11e 1555	gct Ala	tae Ser	ggo Sly	Ser	560 560	gcc Ala	agc Ser	gct Ala	Ala	toe Ser L565	gaa Glu	gcc Ala	CAG	4704
43	tqc aad Cys Lys 157(s Fro	tac Tyr	toc Tyr	Ser	gac Asp 1575	taç Tyr	tog Sez	aga	Sps	099 Arg 1586	ren	atk Leu	yal Val	Ris	4752
	cac cts His Les 1585	g tigt s Cys	add Thr	Ser	Cac His 1590	Tys	ctg Leu	gac Asp	Leu	ttc Phe 1595	atc Jie	act Thr	GTÀ åå¢	isv	acc Ile 1600	4800
50	Gly Le	g sac J Asn	Val.	gto Val (605	act Thr	atg est	gcc Ala	Met	gaa Glu 1610	cat	tac Tyr	caq Gln	Gin	000 Pro 1615	cag Gin	4848
<i>55</i>	ats co	a Asp	gag Glu 1620	got Ala	ctg Leu	aag	Ile	tgc Cys 1625	Aso	tac	ats	Pne	acc Thr 1830	gtc Val	atu	4896
60	ttt gt Phe Va	c ttt 1 Phe 1635	gaq	tea	gtt Val	50e	aaa Lys 1640	Less	gtg Val	gcc Ala	200	990 Gly 1645	tte Pne	Arg	eyt Arg	3944
	the the She Ph 165	e Gln	gac Asp	agg	Tro	aa: Aso 1655	Gin	ctg Leu	gac	Leu	got Ala 1660	arr	gtg Val	teu	est Leu	4992

s	too att a Ser lie M 1665	er Siy Ila	aca ctg Thr Lea 1670	Glu Glu	att gag The Glu 1 1575	gtorsat s Val Asn i	ty tog ttp et Ser bet 1680	5043
,	ccc atc a Pro lie A	ac coc acc ac Pro Thr 1695	ato acc lie lie	Arg Ile	atg agg : Met Azg : 690	gig cic a Val les A	gt att get rg lie Aim 1695	5088
10	oge gtt c Arg Val L	tg sag otg eb Lys Leu 1700	teg eeg Leu Lys	etg gtt Met Ala 1705	gtg ggc : Vai Giy :	Met Ang 8	ce ctg ctg ia beu ben 10	5136
15	His The V	tg atg cag al Met Gln 15	Ala Lev	ccc caq Pro Gin 1720	gtg ggg : Vai Gly :	aac oty t Man Leo C 1725	iga ett ett Ny Leu Let	5194
20					Ala Lea i		ac one ar: No Seu Pha	5232
25	gga gac c Gly Asp t 1745	en Glu Cys	gat gag Asp Glu 1750	aca cac Thr His	eat tgt Pro Cys 1755	gag ggc t Sio Sly L	en Gly Arc 1760	3289
	cat gcc a Nis Ala T	ec tit agg hr Phe Arg 1765	Asn Pho	Gly Met	gcc tit Ala Bhe 770	atg see c Leu Thr l	etc ttc cga led Phe Arg 1775	3326
30	gto tee a Val Ser T	et ggt gas hr Gly Asp 1780	aac tgg Asn Trp	aat ggt Asn Gly 1705	att atg . Ile Met	Lys Asp 1	oc cto cgq bt Leu Arg	5376
35	Asp Cys A	ac cay gay ap Gin Giu '95	Ser Thr	tgc tac Cys Tyr 1800	asc sot Asn Thr	gto sto t Val lie S 1805	er ert att	5424
40	Tyr Phe V 1810	tg tec ite Mai Ser Phe	gtg ctg Val Leu 1915	acg gcc Thr Ala	Gin Phe	gtg gtg g Val Leu Y 820	pto ase gto Asi Asi Val	5472
45	gtc ata g Val Ile A 1825	da Val Leu	atg aag Met Lys 1830	cac otg His Leu	gas gas Glu Glu 1835	agc aac a Ser Asn I	ess gag gcc ys Slu Ala 1845	5520
				Ala Glu			etq aeg acg det Lys Thr 1855	5568
50						Pro Phe 1	etc tgg ccc Leu Try Pro 170	5616
33	Gly Val 0		Asn Sar				ggg got oca Sly Ala Pro	2661
60	cac acc a Sis Thr I 1890	sch god dad Thr Ala Ris	att gga The Gly 1895	Ala Ala	Ser Gly	tto too : Phe Ser ! 900	ott gag cac Leu Glo 81s	5712
	ccc acg a Pro Thr 8 1905	atg gia cot Mar Val Pro	cac ccc Mit Pro 1910	gag gag Glu Glu	gog cca Val Pap 1915	gto doc « Vai Pro i	sta qqa cca Leu Gly Pro 1920	5769

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	Asp Leu L	tg act gtg ep Thz Yal 1925	agg aag : Asg bys :	Ser Sly	gic ayo : Val Ser: 930	ogg arg (Arg Thr)	cas tot Sta Ser 1935	oto pous Leu
j.		ac agd tac sp Set Tyr 1940				The Als (
10	cta gga c Len Gly H 19	ac agg ggc is Arg Gly 55	1 23 333 c	oto occ . Leo Pro 960	asa qcc Lys Ala	cag toa (Gin Ser (1965	ggy ser	atc 5904 Ile
15	ttg tcc g lmu Sex V 1970	tt cac tco al His Ser	caa cca d Gin Pro 1 1975	gca gac Ala Asp	Thr Ser	rgo ato d Cyd lle i 980	ota cag Leu Gla	ctt 5952 Leu
20		at grg cac sp Val His ï					Pro The	
23	qqc qcc a Gly Ala I	te cet aaa im Pro Lys 2003	csa ccc : Leu Pro :	Pro Pro	ggc ege Gly Arg : 010	ted oot : Ser Pro :	oty got Leu Ala 2015	cag 6048 Gin
	agg sat c Arg Pro L	en Wid Mid se sid did se sid did	Gag gca : Glo Ala :	gta ata Als Ile 2025	agg act Arg Thr	Asp Ser .	ctg gat Leu Asp 030	gtg 6096 Val
30	cad ggc c	ed Gil Ser 35	Arg Glu l	gac otg Asp Leu 040	ttq tca : Leu Ser :	gag gtg . Glu Vai : 2045	egt ggg Ser Gly	occ 5144 Pro
35		ct ctg acc ro Leu Thr			Phe Trp			
40	Cag gtg s Gin Vai G 2065	aş caş cgt ln Gin Arg	tee ggc Ser Gly	ato dag Ile Gln	age aaa Ser Lya 2075	gto too . Val Sec	Lys His	atc 6240 11a 080
45	ogo otg c Arg Leu P	ca god cot ro Ala Pro 2085	tgc oca : Cys Pro	Gly Leu	gss coc Glu Pro 090	egc tgg : Ser Trp :	gen and Ala Lys 2095	gac 6288 Asp
	ect cea g Pro Pro G	ag acc aga iu Thr Arg 2100	agc agc Ser Ser	tta qaq beu Glu 2105	osg gac Leu Asp	The Glu	ctg agc Leu Ser 110	tgg 6336 Trp
50	lie Ser G	ga gac ctc ly Asp Lev 15	beu Pro	age age Sar Ser 120	cag gaa Glo Glu	gas occ Glu Pro 2125	ctg ttc Leu Phe	eca 6384 Pro
33	cgg gac c Arg Asp L 2130	tg aag say eu Lys Lys	cgo tec Cys Tyr 2135	agt gts Ser Val	Glu Tha	cag ago Glo Ser 140	tgc agg Cys Arg	ogc 6432 Arg
60		gg tto tgg Lly Phe Trp					Ila Ala	
	age tgt c Ser Cys L	rtg gav agd Jou Asp Ser 2165	ggd tad Gly Ser	Gin Fro	ogo oté Arg Leu 170	tặt cca Cys Pno	ago cor Ser Pro 2175	tos 6528 Ser

5	agc Ser	ate Leu	999 91y 2	915 617 915	oma Gln	eet Pro	art Leu	Gly	ggt Gly 185	920	617 333	agc Ser	Arg.	det 210 190	aaq Lya	asa Lys	6376
J.S	aaa Lys	240	agc Ser 2195	oda Pro	\$20 000	agt. Ser	Tie	707 Sez 200	ata Ile	980 Asp	000 000	52.0	gag Glu 1205	agt Ser	cag Gin	Gly	6624
Q	Ser	299 A29 210	ecc Fro	cca Pro	CAs edc	Ser	cct Pro 215	ggt Gly	gic Val	rgc Cys	Leu	agg Arg 2220	agg Arg	agg Arg	gog Ala		6672
3	gue Ala 2205	Ser	qac Asp	ton Sec	Lys	gat Asp 2230	ecc Pro	ttg Ser	gec Val	Ser	aqc Set 1235	ese Pro	nte Leu	gac Asp	388	scg Thr 2240	6720
20			tea Ser	Pro					Asp					Ser			6763
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30	<210 <211 <211	> 6 > 0		3 sp													
33	<220 <221 <221	> 0	ps li	(681)	6)												
	<400 stg Met 1	Gác	gaç	gag Glu	gag Glu	gat Asp	G1y Gga	gcg Ala	ggc	gcc Ala 10	gag Glu	gag Giu	teg Ser	gga Gly	çaq 61n 15	222	45
10			Spe														96
S	gīà āāā	pro	ggg Gly 35	tog	acg Thr	gaa Glu	aag	gac Asp 40	eeg	Gly	agc Ser	gcg Ala	gac Asp 45	too	gaq Glu	gcg Ala	144
10	gaq. Glu	999 619 50	ctg Leu	Sto	tac	Sto	gog Ala 55	Ota Leu	gcc Ala	ecg	gtg Val	gtt Val 60	ttc Phs	ttc	tac	ttg Leu	192
ĬĴ			gac Asp									Arg					240
	gro	tgg	tro	gag Glu	oga Ang 85	Val	agt Ser	atg Net	ceg Lea	gro Val 90	arr	dit Leu	oro Leu	aad	tgt Cys 95	Va.i	288
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Arg gct Ala	CA3	Arg 115	27.5	cig	cag Gin	gos Ala	学的会	gat Asp	gac Asp	the Phe	ate	111	goo	ttt Phe	ttt She	383
888	gra Val	986					150					120				
888	130	Giu	Met	Val Val	geg Yai	aeg Lys 135	avg Met	gtg Val	gco Ala	ttq Leu	ggn Gly 140	sin	set Phe	GĮÀ āāā	aag Lys	432
Lys 145	tgt Cys	tar Tyr	etq Leu	Gly	gao Asp 150	ect The	tgg Trp	aac Asn	ogg Arg	ctt Leu 155	gat Asp	titi She	zec She	att	gtc Val 160	480
att Ile	gca Ala	Gly	arg Met	atg Leu 165	gag Glu	cat Tyr	tog Sec	ctg Leu	gac Asp 170	ctg.	cag Gin	aan Asc	310 310	aço Ser 175	256 856	524
tec Sør	gca Als	gtc Vai	agg Arg 180	aca Thr	gtc Val	egt	grg Val	otq Leu 185	cga Arg	ccg Fro	ote	ass Arg	300 Ala 190	stt Ile	aad Ass	576
egg Arg	gtg Val	occ Pro 195	age Ser	atg Net	ogc Arg	att	ctc Leu 200	gto Val	aca Thr	tta Leu	ced	otg Leu 203	gac Asp	acc Thr	ttg Deu	624
ect Pro	atg Met 210	atg Leu	gay Gay	aac Asn	gco Val	otg Leu 215	ctg Leu	ctc Leu	tgt Cys	ttc Phe	ttc Phe 220	gts Val	tkt 8be	the Pha	atc Tle	672
ttt 866 225	gge Gly	atc 11e	geg Val	giy	gtc Val 230	cag Gln	etg Leu	tgg Trp	gos Ala	998 619 235	ceq	cat Leu	Arg	aac Asn	agg Arg 240	720
tgc Cys	e e c Phe	ace Leu	ede Pro	gag Glu 245	aac Ass	nno Phe	agc Sec	ctc	Pro 250	ctq	agc Ser	yal Val	gac Asp	orq Leu 255	gag Glu	768
cat Pro	tat	tac Tyr	cag Gln 260	aca Thr	gağ Glu	aat Asn	gag Glu	gac Asp 265	gag Glu	age Ser	Pro	tto Phe	atc 11e 270	tgc Cys	tet Ser	915
cag Gin	cat	099 Arg 275	gag Glu	aar Aso	ggc Gly	atg Met	aga Arg 280	tec	tgc Cys	agg	agt Ser	gtq Val 285	200	aca Thr	ctq Leu	864
ogt Arg	Gly	Glu	ggc Gly	ggt Gly	ggt Gly	395 395	oca Pro	ecc	tgc Cys	agt Ser	Leu	Asp	tat	gag	acc	912
Tyr	Asa	agt Sec	sec	ago Ser	Asn	The	acc	tgt Cya	gto Val	aan	Trp	Asc Asc	cag Gin	tac Tyt	tat Tyr 320	960
acc	aac Asn	tgc Cys	tet Sez	Ala	Gly	gag Glu	cac	aac Asn	Pro	Phe	ass	gly	gcc Ala	ato Ile 335	aac Ass	1008
Phe	gac	aac Asn	110	Gly	tat Tyr	que	t gq Tep	116	Ala	atc Ile	Phe	- Cag - Gin	Val	lie	acs	1956
atq Leu	gaq Glu	GLY	Try	gto	qac Asp	and	Met	Tyr	t to Phe	gra Val	acq Mer	Asç	Sin	cac His	too Ser	1104
	Ile too too ogg trees tre	ter gea ser Ala ere gea arg vai arg ger ger arg vai trr ger ger tre cya phe cot tate from Tyc car cot gin from arg gily arg cot arg gily arg cot arg gily arg cot arg	try and graged state an	the Ala Gly Met the gea gtd agg Ser Ala Val Arg 189 egg gtg occ agc Arg Val Pro Ser ect atg Pro Ser the ggg etg occ agc Arg Val Pro Ser ect atg etg E	Ile Ala Gly Met Leu- Sec Ala Val Ara Thr 180 egg gtg occ agc atg Arg Val Pro Sec Met 180 egg gtg occ agc atg Arg Val Pro Sec Met 190 ect atg atg ggc aac Pro Met Leu Gly Asn 210 tit ggc atc gtg ggc Ene Gly Ile Val Gly 220 tgc ttc atc dcc gtg ggc Ene Gly Ile Val Gly 220 cay Phe Leu Pro Glu 270 cay Cat cgg gag aac Cyx Phe Leu Pro Glu 270 cay cat cgg gag aac Cln Pro Yc Tyr Gln Thr 270 cay cat cgg gaa agc Cln Pro Arg Glu Asn 270 cat cac togg gaa agc Glu Pro Arg Gly Gly 290 cat aac agt tcc agc Tyr Asn Ser Ser Ser 305 acc aac tgc tt gcg Thr Asn Cys Sex All 271 tt gac aac at tgc The Asp Asn Ile Gly Clay gag gat Ty and gag gd Leu Gly Gly Gly Clay Gly Gly Clay Gly Gly Clay Clay Clay Clay Clay Clay Clay Cl	Ile Ala Gly Met Leu Glu 165 tee gea gte agg aca gte Ser Ala Val Arg Thr Val 186 egg gtg cee age atg ege Arg Val Pro Ser Net Arg 187 eet atg etg gge gaa acg ge Pro Met Lau Gly Asn tit gge ate gtg gge gte Pro Met Lau Gly Asn Val 228 ttt gge ate gtg gge gte Pro Met Lau Gly Asn ttt gge ate gtg gge gte Pro Met Lau Pro Glu Ran Cyx Phe Leu Pro Glu Ran Cyx Phe Leu Pro Glu Ran 245 cet tee een den aca gag Pro Tyr Tyr Glu Ran 260 cay eet egg gag ast gge Clh Pro Arg Glu Asn Gly 290 cat cat egg gaa age ggt ggt Arg Gly Gla Gly Gly 290 tat aac agt tee age age tat aca agt tee age are Ser Ser Ser An 305 ace ac tge tet geg ggt Thr Asn Cyx Sex Ala Gly 315 ttt gee aca att gge tat Phe Asp Asn Ile Gly Ty sla ggt gdt egg gad ggt egg tet gdt act gag gad ggt Tyr Asn Cyx Sex Ala Gly 315 ttt gee aca att gge tat Phe Asp Asn Ile Gly Tyr sla Ray att ggd ggd ggd gg teg gdt ggd ggd teg ggd ggd ggd ggd ggd teg ggd ggd ggd ggd teg ggd ggd ggd ggd ggd teg ggd ggd ggd ggd ggd teg ggd ggd ggd ggd ggd	The Ale Gly Met Lew Glw Tyr 1655 tee gea gtc agg aca gtc ogt Ser Ale Val Arg Thr Val Arg 189 egg gtg cec agc atq ege att Arg Val Pro Ser Met Arg Ile 189 ect atg ctg ggc aac gtc etg Pro Ser Lew Gly Asn Val Lew 215 tit ggc atc gtg ggc gtc cag Pro Ser Lew Gly Asn Val Car 220 ttt ggc atc gtg ggc gtc cag Pro Ser Lew Gly Asn Val Car 230 tgc ttc etc dtc gg ggc gtc cag Pro Ser Lew Pro Glo Asn Pro 245 cot tar tac cag aca gg as trc Cyx Phe Lew Pro Glo Asn Pro 245 cot tar tac cag aca gag at Pro Tyr Tyr Gln Thr Glu Asn 260 cag cat egg gaa gec ggt ggt ggc arg arg Gln Pro Arg Glu Asn Gly Met 275 cut ggg gaa gec ggt ggt ggc arg Gly Gly Gly 290 cut ggg gaa ggc ggt ggt ggc gc arg Gly Gly Gly Gly 290 tat aac agt tot gg	The Als Gly Met Lew Glw Tyr Ser 165 tee gea gtd agg aca gte eqt gtg Ser Als Val Arg Thr Val Arg Val 180 egg gtg ecc age atg ege att etc Arg Val Pro Ser Met Arg It Law 200 ect atg etg geg aca gte etg egg et atg egg etg ecc agg acg etg ecc agg etg ecc atg etg growth arguer and end end end end end end end end end e	The Ale Gly Met Leu Gly Tyr Sec Leu 185 toc goa gtd agg aca gtd cgt gtg ctg Ser Ale Val Arg Thr Val Arg Val Leu 180 ogg gtg ccc agc atg cgc att ctc gtc Arg Val Pro Sec Met Arg Ile Leu Val 200 cct atg ctg ggd aac gtc ctg ctg ctc Pro Met Leu Gly Ann Val Leu Leu 210 ttr ggc atc gtg ggc gtc cag ctg tgc Ebe Gly Ile Val Gly Val Gln Leu Trp 220 ttr ggc atc gtg ggc gtc cag ctg tgg Ebe Gly Ile Val Gly Val Gln Leu Trp 220 ttr ggc atc gtg ggc gtc cag ctg tgg Ebe Gly Ile Val Gly Val Gln Leu Trp 220 ttr ggc atc gtg ggc gtc cag ctg tgg Ebe Gly Ile Val Gly Val Gln Leu Trp 220 ttr ggc atc gtg ggc gtc cag ctg tgg Ebe Gly Ile Val Gly Val Gln Leu Trp 220 ttr ggc atc gtg ggc gtc cag ctg tgg Ebe Gly Ile Val Gly Val Ann Gln Ann Glu Ann G	The Als Gly Met Leu Glu Tyr Ser Leu Asp 165 the gea get agg aca get ent get ord ord Ser Als Val Arg Thr Val Arg Val Leu Gu Ges Ser Als Val Arg Thr Val Arg Val Leu Arg 180 ugg get occ agc acg ogc att ctc get aca Arg Val Pro Ser Met Arg Illan Val Thr 200 cet and ctg get acc get oct ctg ctg ctc tgt Pro Met Leu Gly Asn Val Leu Leu Leu Cys 218 tit get acc get get get cag ctg tgg gea Phe Gly Ile Val Gly Val Gln Leu Trp Als 228 ttt get acc ctg get get cag ctg tgg gea Phe Gly Ile Val Gly Val Gln Leu Trp Als 228 cet ct ct cac dod gag acc the age ctc ccc cys Phe Leu Pro Glu Asn Phe Ser Leu Pro Pro Tyr Tyr Gln Thr Glu Asn Glu Asp Glu 265 cag ctt ogg geg act geg act dag gea tec tgc Chr Tyr Tyr Gln Thr Glu Asn Glu Asp Glu 265 cag ctt ogg geg get get geg act cc tgc Arg Cly Gly Phe Arg Gly Gly Pro Pro Cys 270 ct geg gaa age get get get cas ccc tgc Arg Gly Glu Gly Flo Pro Pro Cys 270 cac act cgc ago sac acc acc tgt get ged cac acc ccc Thr Asn Cys Ser Als Thr Thr Cys Val 305 tt gec acc tgg tet geg ged cac acc ccc Thr Asn Cys Ser Als Gly Glu His Asn Pro 325 tt ged aca att get tat get tg get cac acc ccc Thr Asn Cys Ser Als Gly Glu His Asn Pro 325 tt ged aca att get tat get at get get ged cac acc ccc Thr Asn Cys Ser Als Gly Glu His Asn Pro 325 tt ged aca att get tat get at get get ged cac acc ccc Thr Asn Cys Ser Als Gly Glu His Asn Pro 325 tt ged aca att get tat get at get get ged Chap Asg Asn Illa Gly Tyr Als Trp Illa Als 340 Leu Glu Gly Trp Val Asp Illa Mat Tyr Phe	The Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu 165 toe goa gtd agg aca gtd oqt qtd otd oqe oog Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro 180 ogg gtg occ agc atd ogd att otd gtd aca tta Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu 200 cot atg otg gdd aac gtd odd att otd gtd aca tta Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu 218 cot atg otg gdd aac gtd otg otd otd tta Cys Phe 218 ttr ggd atd otg gdd aac gtd otg otd otd tta Cys Phe 218 ttr ggd atd otg gdd gdd odd dta Leu Leu Leu Cys Phe 218 ttr ggd atd otg gdd gdd odd dta Leu Trp Ala Gly 228 ttr ggd atd otg gdd gdd odd dta Leu Trp Ala Gly 228 tdt tr ocd odd gag aad tro agd otd cod cod otg gdd odd gag agd pro 229 cot tot tad oog ada gag atd ang dan gag agd Pro Tyc Tyr Gln Thr Glu Ann Glu Ang Glu Ser 260 cay cat ogg gag aat gdd atd agd aca aga gad pro 275 cat cat ogg gag aat gdd atd agd aca aga gad pro 275 cat cat ogg gag aat gdd agd odd gag agd Pro Tyc Tyr Gln Thr Glu Met Arg Ser Cys Arg 270 cat ggg gaa agd gdd gdd gdd gdd odd ag agd Cys Arg Cly Gly Bro Pro Cys Ser 290 cat aan agt tod agd ser aca aca cat gtd gtd aac Tyr Asn Ser Ser Ser Ann Thr Thr Cys Val Ann 305 acc aar tgd tot gdd gdg gd odd caa ac cot tod Thr Ann Cys Ser Ala Gly Glu Hiz Ann Pro Pre Ann Cys Ser Ala Gly Glu Hiz Ann Pro Pre Ann Cys Ser Ala Gly Glu Hiz Ann Pro Pre Ann Ann Cys Ser Ala Gly Glu Hiz Ann Pro Pre Ann Ann Cys Ann Hie Gly Tyr Ala Pro Hie Ala Lie Glu Gly Try Ala Pro Hie Ala Lie Glu Gly Try Nal Arg His Net Tyr Pre Val Leu Glu Gly Try Nal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Val Leu Glu Gly Try Yal Arg His Net Tyr Pre Va	The Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln 165 toc goa gto agg aca gto cqt gtg otg oge oog otc Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu 180 ogg gtg occ agc atg ogo att otc gtc aos tta otc Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu 280 cot atg otg gog aas gto otg otg otc tgt to ttc Pro Met Leu Gly Asn Val Leu Leu Coys Phe Phe 218 215 ttr ggc atc gtg ggc gto cas dtg tgg gos gga atg Phe Gly Ile Val Gly Val Glu Leu Leu Coys Phe Phe 228 ttr ggc atc otg ggc gto cas dtg tgg gos gga atg Phe Gly Ile Val Gly Val Glu Leu Leu Crys Phe Phe 228 ttr ggc atc otg ggc gto cas dtg tgg gos gga atg Phe Gly Ile Val Gly Val Glu Leu Trp Ala Gly Leu 285 tgc ttv occ doc gag aac tro agc ctc ccc ctg agc Cyx Phe Leu Pro Glu Aan Phe Ser Leu Pro Leu Ser 270 cct tot tac cos daca gag aat gas goc atg gag agc occ Pro Tyr Tyr Cln Thr clu Aan Glu Asp Glu Ser Pro 260 cty ctc tog gag aat gga atg gas toc tgc agg agt Cln Pro Arg Glu Asn Gly Met Arg Ser Cyx Arg Ser 275 cty gg gas age ggt ggt ggc cae cac ccc qc agt ctg Arg Gly Glu Gly Gly Fro Pro Cyx Ser Leu 290 tat aan agt toc ago aac acc act tgt ta aac tgg Tyr Asn Ser Ser Ser Aan Thr Thr Cyx Val Ann Tr 305 acc aac tgc tct ggr ggr gag cac aac cet tcc aas Thr Asn Cyx Sex Ala Gly Glu His Asn Pro Phe Lyx 325 ttt gac aac att ggc tat goc tgg acc acc acc tcc Leu Glu Gly Tyr Ala Trp Ile Ala Ile Phe Asp Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Asp Glu Gly Tyr Val Arg Ile Net Tyr Phe Val Mer Leu Glu Gly Trp Val Agr Ile Net Tyr Phe Val Mer	The Ala Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asc 165 toe goa gtd agg aca gtd eqt gtg ctg cqs cog ctc agg Ser Ala Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg 180 ogg gtg coc agc atg cqc att ctc gtc aca tta ctg ctg Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Cay Pro Met Lau Gly Asn Val Leu Leu Cuy Pre Pro Met Lau Gly Asn Val Leu Leu Coy Phe Pro Met Lau Gly Asn Val Leu Leu Coy Phe Pro Met Lau Gly Asn Val Leu Leu Coy Phe Pro Met Lau Gly Asn Val Leu Leu Coy Phe Pro Met Lau Gly Val Glu Leu Leu Coy Phe Pro Met Lau Gly Val Glu Leu Leu Coy Phe Pro Met Bre Gly Yal Glu Neu Trp Ala Gly Leu Lau Coy Phe Pro Met Lau Gly Val Glu Leu Leu Coy Phe Pro Met Lau Gly Val Glu Leu Leu Coy Phe Pro Met Lau Gly Val Glu Leu Trp Ala Gly Leu Lau Coy Phe Leu Pro Glu Aan Phe Ser Leu Pro Leu Ser Val 285 tcc ttc ctc ctc doc gag aac ttc agc ctc ccc ctg agc gtg ctc tro Tyr Tyr Cln Thr clu Aan Glu Asg Glu Ser Pro Phe 260 ctg ctc cgg gag aat gga atg aga tcc tgc agg atg gtg Cln Pro Tyr Tyr Cln Thr clu Aan Glu Asg Glu Ser Pro Phe 260 ctg ctc cgg gag aat ggg tgg cca ca ccc ctg agt ctg gar Gli Pro Arg Glu Asg Gly Gly Pro Pro Cys Ser Leu Arg Gly Gla Gly Gly Gly Pro Pro Cys Ser Leu Arg Gly Gla Gly Gly Gly Gly Pro Pro Cys Ser Leu Arg Gly Gla Gly Gly Gly Gly Pro Pro Cys Ser Leu Arg Gly Gla Gly Gly Gly Gly Yal Aan Trp Asg 305 acc aac tgc tct ggp gag cac aac acc tgt gta aac tgg cac acc acc gc gar fra Aan Cys Ser Ala Gly Glu His Asp Pro Phe Asg Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Glu Asg Gly Gly Gly Gly Gly Fro Phe Asg Asn Ile Gly Tyr Ala Trp Ile Ala Ile Phe Glu Gly Gly Gly Gly Gly Gly Fro Phe Asg Ash Ile Gly Gry Ala Ent to tte gat agg gad Leu Gly Gly Fro Asg Ash Ile Gly Gry Asg atc atc atc ttc gat agg Phe Asg Ash Ile Gly Gry Asg atc acc atc ttc acc gar Ghe Asg Ash Ile Gly Gry Asg atc acc atc ttc acc acc Leu Gly Gly Fro Asg Ash Ile Gly Tyr Asi Fro Fro Fro Cys Ser Leu Gly Gly Fro Pro Fro Cys Ser Leu Gly Gly Fro Pro Fro Cys Ser Leu Asg Gly Gly Fro Pro Fro Cys Ser Ala Gly Glu His Asi Fro Fro Fro Cys Ser Leu Asg Gly Gly Fro Pro Fro Cys Ser Ala	The Ale Gly Met Leu Glu Tyr aer leu Asp leu Gln Asc Vei 165 tee gea gtd agg aca gte ogt gtg otg oge eeg etc asg 3cc Ser Ale Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Ala 180 egg gtg ecc agu atg ego att etc gtc aca tta etg etg acg Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Cya Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu Cya 2cc ect atg etg gge gaz ecc etg etg etc tgt tte tte gtc tte Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val Pre 218 ttr gge atc gtg gge gtc eag etg tgg gca gga etg ett ege 220 ttr gge atc gtg gge gtc eag etg tgg gca gga etg ett eu Arg 220 ttr gge atc gtg gge gtc eag etg tgg gca gga etg ett eu Arg 220 ttr gge atc gtg gge gtc eag etg tgg gca gga etg ett eu Arg 220 ttr gge atc gtg gga ac rec age etg tgg gca gga etg ett eu Arg 220 ttr gge atc gtg gag ac rec age etg etg pro Leu Ser Val App 245 ect tar tac eag aca gag act ec age etc ecc etg age gtg gac etg ett ecc eag aca gag act gag agg en en en er Pro Phe Leu Pro Tyr Tyr Gln Thr Glu Asn Glu Asp Glu Ser Pro Phe Leu 270 ecs ect egg gag act gag act ecc tgc aga agt gtg ecc etg ect egg gag act gag act ecc tgc aga agt pro ecc ell Pro Arg Glu Asn Gly Met Arg Ser eys Arg Ser Val Pro 285 ect egg gaa age ggt ggt gg eca ecc ecc etg age agt Pro 286 ect egg gaa age ggt ggt gg eca ecc tgc agt eff erc 277 ect ggg gaa age ggt ggt gg eca ecc tgc agt etg erc 287 ect egg gaa age ggt ggt gg eca ecc tcc etg age etg 288 ect egg gaa age ggt ggt gg eca ecc ecc tgc agt erc 289 ect egg gaa age ggt ggt gg eca ecc ecc tgc agt erc 280 ect gag gaa gge ggt ggt gg eca ecc ecc tgc agt erc 280 ect ggg gaa age ggt ggt gg eca ecc ecc tgc agt erc 281 ect ggg gaa age ggt ggt gg eca ecc ecc tgc agt erc 283 ect ecc ecc ecc ecc age get 283 ect ecc ecc ecc ecc ecc etg ecc ecc 285 ect ecc ecc ecc ecc ecc ecc ecc ecc 286 ect ecc ecc ecc ecc ecc ecc ecc ecc ecc 286 ecc ecc ecc ecc ecc ecc ecc ecc ecc 287 ecc ecc ecc ecc ecc ecc ecc ecc 288 ecc ecc ecc ecc ecc ecc ecc ecc 289 ecc ecc ecc ecc ecc 280 ecc ecc ecc ecc ecc ecc 280 ecc ecc ecc e	The Als Gly Met Leu Glu Tyr Ser Leu Asp Leu Gln Asc Val Ser Les 185 tee gea gtd agg aca gtd eqt gtg otd eqs oug otd agg ged at Asp Thr Val Arg Val Leu Arg Pro Leu Arg Als Ile 186 egg gtg gtg ecc agg atg egg att etc gtc aos tts etg etg gad acc Arg Val Pro Ser Met Arg Ile Lau Val Thr Leu Leu Leu Asp Thr 200 ect atg etg ggd and ged atg egg att etc gtc aos tts etg etg gad acc Arg Val Pro Ser Met Arg Ile Lau Val Thr Leu Leu Leu Asp Thr 200 ect atg etg ggd and gtc etg etg etc bgt tto tte gtc kit tte Pro Met Leu Gly Asn Val Leu Leu Cys Phe Phe Val Phe Phe 218 ett ggd atc gtg ggd gtc eag etg etg etg etg gad agg atg ett etg as Ebe Gly Ile Val Gly Val Gln Leu Trp Als Gly Leu Leu Arg Asn 220 ttt ggd atc gtg ggd gtc eag etg tgg ges gga atg ett etg agg etg etg etg etg etg etg etg etg etg e	too gos gto agg aca gto cot gto oro oog oto agg po att aac ser Als Val Arg Thr Val Arg Val Leu Arg Pro Leu Arg Als Ile Asn 180 190 190 180 180 190 190 190 190 190 190 190 190 190 19

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	rec Phe	tec Tyr 370	aac Asn	tto Pos	atc	ter Tyr	sto she 375	alt	cht beu	otc Leu	acc	atc Tle 380	491 818	GTA 335	500 905	ttc Pne	1152
5	ere Pas 385	atg Met	att	aac Ase	ang Leu	вдо Сув 390	otg Leu	gtg Val	gtg Val	att	gec Ala 395	acy	G1s	ttc the	tee	949 01u 400	1200
10	The	ass bys	Cag Gin	grå	gaq Glu 465	ags Sec	cag Gin	019 180	atg Wet	egq Aeg 410	gaç Glu	cag Gin	eg: Arg	gta Vəi	oga Arg 415	ttc Phe	1548
15			aet Asn														1296
20			989 61u 435														1344
•	oga Atg	agg Arg 450	otg Leu	gcc Ala	cag Gin	gtc Val	tet Ser 455	agg Arg	gat Ala	ata Ile	ggc Gly	9±9 701 460	ogg	gct Ala	elà add	Lev	1392
25	oto Leu 465	890 800	agu Ser	cca Pro	gtg Val	gcc 81a 470	ogt Arg	agt	GTÀ 684	gag Gin	gag Glu 475	000 P20	Slo Cag	970	agt Ser	990 Gly 480	1440
30	agc Ser	tgs Cys	act The	age	tca Ser 485	can Sis	agt Arg	egt Arg	etg Leo	tot Ser 490	gtc Val	Ris	eac Sis	CEQ Leu	gec Val 495	Các	1488
35			cac His														1536
40	yra	gt: Val	000 Pro \$15	yrd cdd	Ala	ago Ser	008 Pro	g#9 Glu 520	atc Ila	cag Gin	gac	Arg	gat Asp 525	gcc Ala	aat Asn	gīà āāā	1584
			Ogg Arg														1832
43	990 619 545	Pro	hio ccd	agg Arg	ggt Gly	gcg Ala 550	gag Glu	tet Ser	gta Val	0a0 818	aqc Ser SSS	tec Phe	rac Tys	Cat His	get Ala	gac Asp 560	1680
50			ttg Lep													Pro	1728
55	tog Ser	gag Glu	qca Ala	tet Ser 585	Gly	agg	ant	grg Val	99t 61y 585	agt Ser	ggg Gly	aag bys	ğtg Val	tac Tyr 590	920	aot	1776
60			acc Thr 595	Ser												geq Val	1824
W 16			Ala										Ser			atc Tle	1871

										20							
															caq Gln		1925
5															ecc Ser 895		1965
10															gee Ala		2018
15	ata Thr	G17 G08	goa Ala 675	gga Gly	gay Glu	eca	gag Glu	500 \$80 880	got Ala	gac Asp	cet His	gtc Val	acq Net 685	820	gac Asp	tem Ser	2064
20															agt. Ser		2113
***															00a		2160
25															gac Asp 735		2208
30	ttc Phe	čgg Arg	aaq Lys	atc Tle 740	Val	gat Asp	agc Ser	aaa Lys	tac Tyr 745	tra	ggc Gly	Arq	gly	att Tle 750	atg Met	are Tle	2256
35	gcc Ala	atc 11*	ctg Leb 755	gtc Val	ast	aca Thr	ctc Leu	agc Ser 760	atg Met	ej adu	ne	gag Glu	140 177 165	cac His	gag Glu	Cag Gin	2304
40															ttc Phe		2352
***	ago Sec 785	ctc	tto Pne	Alà	otg Leu	gag Glu 790	atg Met	atg Leu	beu	aaa Lys	ctg Leu 795	ctt	gtc Val	tac Tyr	ggt Gly	800 800	2400
43															arr 11e 815		2448
50															stq Leu		2496
55															ege Azg		2544
60	ctg Leu	eeg Pro 850	Ala	ong Leu	089 616	ogc	Cag Gin 855	teu	gcg Val	gtg Val	etc beu	atq Met 860	Lys	acc	atg Met	gac Asp	2592
00		Val													arc [le	tto Phe SBS	2640

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	agc Ser	atc Tle	ren cré	Ġέγ	a13 Met 885	cat Nis	ctc Lea	ont Sam	Sly	cac Cys 895	aab Lys	ttr Pha	ges Ala	tot 3až	988 319 895	aga Arq	268\$
5	gat. Asp	ggg Gly	gac Asp	acq Thr 900	tog Ceu	520 609	qec Asp	Arg ogg	909 Lys 305	aat Aso	ete Phe	gac Asp	100 5er	003 190 910	ata Lep	tgg Tzp	3736
10										aut							3784
15	gtc Val	ctc Leu 930	tac Tyr	aan Asn	gge Gly	atg Net	gec Ala 935	sec	aca Thr	tog Ser	tot Ses	igg Tro 940	go: Ala	got Ala	ctt Leu	tac Tyx	2832
20	rro Phe 945	atc	gcc Ala	ctc Leu	arg Met	act Thr 950	ppe 9be	ggc Gly	aac Asn	tet Tyr	gtg Val 955	ata Leu	its Phe	aac Asn	at.g Leu	etg Len 960	2880
20	A91 drd	gcc Ala	act 110	ett Leu	gog Val 965	gaa Glu	gga Sly	tte Phe	cag Gln	gca Ala 970	gag Giu	gga Gly	gat Asp	gcc Ala	acc Thr 975	asg Lys	2928
25	tot Sar	gaç Glu	cca Ser	gag Glu 980	926	gat Asp	ttc Pha	ttt Phe	tog Ser 985	000 Fro	agt Sec	gtg Val	gat Asp	32 y 32 y 99 t	gar Asp	999 61y	2976
30				Lys			Ala			gst Ala		Gly					3024
33	Leu	oga Arg 1010	Lys	age Ser	ctt Leu	Len	oca Pro 1015	ecc Pro	Leu	atc lie	Ile	cat Nis 1020	acg Thr	got Ale	gog Ala	aca Thr	3072
40	CCA Pro 102:	Mer	t ca Ser	eac His	800	aag Lys 1030	agc Ser	tec Ser	agc Ser	Thr	ggt 61y 1035	gtg Val	ggg Gly	gaa Glu	ALA	ctg Leu 1040	3120
70	ggc Gly	tet Ser	Gly	Sar	oga Azg 1045	cgt Arq	acc Th:	agt Ser	Ser	agt Ser 1050	61 8 888	Ser	Ala	Giu	ect Pro 1055	Gly	3168
45	get Ala	goo	His	Cat Ris 1060	Glu	atg Mat	aaa Lys	Cys	cog Pre L065	00% Pro	agt Ser	gcc Ala	Arg	ago Ser 1076	too	oog Pro	3216
50	CAC Has	Ser	ccc Pro 1075	tgg Trp	agt Ser	gcg Ala	Ala	ego Ser 1881	ago Ser	tgg Tep	acc Thr	Sec	agg Arg 1085	egc Arg	toc Ser	agc. Ser	3264
5.5	Arg	aac Aso 1096	ago Ser	atg Leu	gga	Arg	gcc Ala 1095	ecc	agc	rta Leu	Lys	ogq Arg 1100	agg Arg	Ser	Sip	agu Sez	3312
60	999 61y 110	Glu	agg Axg	agg Arg	Sec	ciq Leu 1110	ctg	tet Set	gga	gaņ	gga Gly 1115	caq Gln	gaq Glu	agt Ser	Gla	gat Asp 1120	3360
au	gaq Glu	gag Glu	gaa Glu	Ser	Coa Ser 1125	619	gag Glu	gac	Arg	gcc Ala 1130	Ser	eca Pro	ons Ala	Gly	agt Ser 1136	qac Asp	3408

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			60	
	tal byt dec egg ggt Sie Ary Sie Arg Diy 1140	tou top gas age o Ser Les Glo Arg o 1145	ag goo eeg egi litt No Ala Dye Ser Ser 1150	tit gat 3456 Ens Asp
3	cty to get act cty bet Pro Amp The Let 1155	cây gig cea 222 c Gin Vai Pro Gly I 1160	rg cat ogc ate got eo Sis Arg Thr Aid 1765	ago ggo 3504 Ser Gly
10	egg age tot goo tot Arg Ser Ser Ala Ser 1170	gág các cás gac t Gla Ris Gla Asp (1175	gt aat ggr aag icg ya Aso Gly Lys Ser 1180	got tos 3552 Ala Ser
15	ggg tgt ttg gee oge Gly Arg Les Ala Arg 1188	acc cty agg act o Thr Lau Ary Thr A 1190	eat gac coo cas org sp Asp Pro Glo Leu 1195	qat ggg 3600 Asp Gly 1200
20	gat gat gat gat gat Asp Asp Asp Aso Asp 1705	Giu Gly Asn Leu S	er Lys Gly Glu Arg	asa caa 3646 Ile Gin 215
***	got tig gio aga too Ala Trp Val Arg Ser 1220	egg oft cot goo t Arg Leu Pro Als 0 1225	gt tgo cga gág lýa Cys Cys Arg Olu Arg 1230	gar roc 3698 Asp Ser
25	tgg tog god tar atc Trp Ser Ala Tyr lie 1735	ttt oot got gag t Phe Pro Pro Gin S 1240	ma agg tit ogt ete Mer Arg Phe Arg leu 1245	ntg ngs - 3744 Leu Cya
30	cac cgg atc atc acc Bis Arg lie Ilm Thr 1250	cac mag atg ttt q Wis Lys Met Phe A 1235	yac cat gtg gtc occ isp his Val Val Leu 1260	gto atc 3792 Val Ile
35	Ile Phe Leu Asn Cys	ath ace ato got a Ile The Ile Ala b 1270	etg gag cgc ccc asa Met Glu Arg Pro Lys 1275	aut gac 3840 Ils Asp 1280
40	oco cao ago got gag Pro Kis Sar Ala Glu 1283	Arg lie Phe Leu 7	ion oto too aso tao Thy Leu Ser Asn Tyr 190	atc ttc 3000 Ile Phm 205
40	acg gca gto ttt cts Thr Ala Val Pne Leu 1300	qot que atg aca q Ala Glu Met Thr \ 1305	gtg aag gtg gtg gca /al bys Val Val Ala 1510	ong ggc 3936 Leu Gly
45	tag tag ttt gag gag Trp Cys Phe Gly Glo 1315	cad goo tan ord : Gln Ala Tyr Leu / 1320	oge ago ago tgg eat Arg Ser Ser Trp Asn 1325	gtg ctg 3984 Val Leu
30	que gge ttg stg gtg Asp Ciy Leu Leu Val 1330	oto ato too gto ; Lev lie Sar Val 1 1335	ato gao ato otg gto Na Asp fle Leu Val 1340	top atg 4032 Ser Met
33	gro too gan agn qqn Val Ser Asp Sex Gly 1345	acc mag atc oft of The Lys Lie Leu (1350	ggc atg ctg agg grg Lly Met Leo Arg Val 1355	crg cgg 4086 Leu Arg 1360
60	cig one ogg acc org Leu Leu Arg The Lac 1360	Arg Pro Leu Arg	gto ato ago ogg gen Val lie Ser Arg Als 370	cag gga 4128 Glo Gly 378
QII/	ctq aag otg gtg gts Leu Lys Leu Val Val 1380	. gag act otg atg : Glu Thr Leu Met : 1305	coa too cto ass cut Ser Ser Let Lys Pro 1390	att qqo 4176 Jim Gly

	Asc Sit	909 Val 1305	gec Val	att Lla	tgc Cys	tg: Cys	355 Ala 1400	22.0 208	too Phe	ato lia	set lie	toc Phe 405	91)	att. Tie	tec	4224
5	999 9tq Gly Val 1410	Clo	ptc Leu	nto Phe	Lys	999 617 1415	aaq Lys	ete Boe	tru 200	Voi	tgt Cys 1420	Gla	gTA dar	gag Glu	geo Asp	4272
10	sec agg The Arg 1425	asc Asn	ats Ile	The	aac Asn 1430	aad Uys	tee	gac Asp	Суз	got Ala (435	gag Glu	gcc Als	ag: Ser	775	094 Ary 1440	4330
15	igg gir Trp Val	arg	813	ang Lyn 1445	tac	880 860	ttt Pbe	Ass	aac Asn (450	etg Leu	ggc Gly	caq Glo	Ala	ctq Leu 1455	eto Met	4368
20	Ser Leu	Phe		Len			498					Asp				4416
	gat gag Asp Gly	000 Leu 1475	gat Asp	gct Ala	gtg Val	Gly	gt.g Val 1480	gat Asp	çag Gln	cag Gin	5x0	atc 11e 1485	atg 8et	aan Aan	cat His	4464
23	aac ccc Ann Pro 1490	Trp			Leu					Phs						431.2
30	ttc tit Pho Phe 1505	gtc Yel	ctg Leu	Asa	atg Met 1510	ttt Pne	gtg Val	ggc Gly	Val	gtg Val (519	geg Val	gag Glo	asc Ass	985	cat Nis 1520	4960
35	aag ngo Lys Cys	aqa Arq	Glo	cac Nis 1525	Gla	gag Glu	gaq Glu	Giu	gaq Glu 1530	geg Alá	agg Arg	Arg	Arg	gag Glu 1535	gag Glu	4608
40	aag cqa Lys Arg	Leu	cgg Arg 1540	agg	tes	qaq Glu	Lys	aag Lys 1545	Arg	Arg	agt Sex	Lys	989 Glu 1550	aag Lys	oag Gin	4656
40	atg gcc Met Ala	gat Asp 1555	cta	atg Met	ttg Leu	Asp	gar Asp 1560	Val	att	gct Ala	Ser	ggc Gly 1565	agu Ser	tea	gcc Ala	4704
45	ago qet Ser Ala 1570	Ala	cca Ser	gaa Glu	Ala	cag Gin 1575	Cys	aaq lys	ecc	Tyr	tac Tyr 1580	tet	gec Asp	tac Tyr	tog Ser	4752
50	aga tto Arg Phe 1585	cgg Arg	ctc	Leu	gtc Val 1590	His	cac	ctg Leu	Cys	acc Thr 1595	Ser	cac Sis	tac	Leu	gac Asp 1600	4800
<i>55</i>	ctc ttc bev Phe	arc : Ile	Thr	ggt Gly 1605	Val	atc	ggg	Leu	aad Asn 1610	gt.g Val	gtc Val	act	Mes	geb Ala 1615	788	4848
60	gee cat Glu His	Tyr	cag Gln 1620	Gin	540 ccc	Gla	115	drg Leu 1825	Asp	gag Glu	gct Ala	Leu	aaq Lya 1630	Ties	Cya	4898
(11)	aat nac Aso Tys	ato	tti	acc	gtc Val	atc	ttt	gcc Val	ttt Phe	gag Glu	toa Ser	gtt Val	tto	aaa Lys	otc Leu	1944

	959 9 Val 8	ec Na 550	tit. Phe	G17 940	ess ess	Ars	935 F13	occ Phe	tto Pbe	caq Gir	Acp	agg Arg 660	11.b 533	aec Asc	dag Gin	ccq	4992
j	980 (Asp (1685	et g	gct Ala	att	gtg Val J	ess Less 670	rec	ser Ser	atc Tie	atij Met J	990 519 875	arc	aca The	atg Leu	gaq Glu	680 Glu geg	5040
10	act (gag Dlu	gec Val	asa	ctg Leu 685	tog Ser	otg Leu	510 960	5:0	aac Asn 690	osc Pro	acc Thr	atc. Tlw	175	292 A29 888.	atc Tie	5088
15	atg : Met /	rrd øða	Val	ctc Leu .700	ege Arg	acc lie	got Ale	803	git Val L705	cty Leu	aag Lys	ete Leu	Leu	689 Lys 710	atq Met	get Ala	3135
20	grg g	Tly	atg Mec 715	Arg	gca Ala	Leu	Lep	080 818 720	acg Thr	gtg Val	etg Net	Gin	gco Ala 725	ctg Les	coc Pro	cag Gln	5184
23	gtg (Val t	199 51 y 730	aac Asn	etg Leu	Gly gga	Land	ctc Lea 1735	ttc Phe	atq Met	rea Leu	Leu	ttt Phe 740	ttc Phe	atc Fle	ttt Phe	gea Ala	5232
2.5	got o Ala-1 1745	trg Leu	ggn Gly	gtg Val	Glu	010 Leu 1750	tit Phe	gga Gly	gac Asp	Lan	gaq Glo (755	tgt Cys	gat Asp	gag Glu	The	cac H13 1760	3290
30	ect : Pro s	ngt Cys	gag Glu	Gly	stg Leu 1765	ggt Sly	arg Arg	cat His	Ala	acc Tbr 1770	ttt Phe	agg Arg	aac Asn	Phe	990 61y 1775	atg Met	5328
35	Ala gec	ttr Pna	Leu	acc Thr L780	ctc Leu	tte Phe	oga Arg	Val	toc Ser 1785	act Thr	Gly	gac Asp	Ass	rgq Trp 1790	aat Ass	ggt Gly	5376
40	atr . Ile i	det.	aag Lys 1795	gac Asp	acc Tha	arm Leu	Arg	980 889 1800	tgt Cys	gac Asp	cag Gln	Glu	tee Ser L895	acc Thr	tgc Cys	tac	5424
70	aac Asn 1	ant Thr 810	Val	atc lle	toc Ser	220	atc 11e 1815	tác Tyr	ttt Phe	ğto Val	ser	Etc Phe 1920	gtg Väl	cig Lev	acg The	gcc Ala	5472
43	cag Gln 1825	ttt Phe	gtg Val	ctg	gtc Val	386 Aso 1830	gig Val	gto Val	ata Ile	gct Ala	gtg Val 1835	ciq	atg Met	aag Lys	eac Sis	Deg Leu 1840	5520
50	gaa Glu	gaa Glu	agc	Aan	aaa Lys 1845	Glu	gcs Ala	asa Lys	Glu	gag Glu 1850	gcc Aia	gag Glu	ctc Leu	Glu	gcc Ala 1855	gaq 61o	5568
33	ctg Lea	gag Glu	Lev	gag Glu 1860	at g Met	Lys	acg Thr	i.ec	agc Ser 1865	820	cag Gln	ccc	His	toc 5er 1870	oog Fra	Lau	5616
60	gge GLy	Ser	ddo Pro 1875	Phe	ot c beu	7.5 7.5	800	999 Gly 1860	Val.	gag	ggt Gly	Val	aac Ann 2661	Ser	act	gac Asp	5664
W	56£	cct Pro 890	Lys	920 220	Gly	gat	028 915 1895	618	acc The	act Thr	Ala	cac His 1900	act	gga Gly	gca Ala	qcc Ala	5713

	cop ggs till Ser Chy Eng 1908	too out gag Ser Leu Gin 1910	car cor acq Ris Pro Thr	atq qts ppo Met Val Pco 1915	car con gag gag Bis Pro Giu Gia 1920	5780
5			Pro Asp Leo		ayy sag tot ggt Asy Lys Sec Gly 1935	5808
10	Val Ser Arg			Asp Ser Tyr	sty igo ogo aat Met Cya Arg Xan 1930	3856
15	ggg age act Gly Set Thr 1955	Ala Glo Arg	teo osa gga Sar Leo Gly 1960	Ris Arg Gly	tgy ggy sto con Trp Gly Leo Pro 1985	5904
20		Ser Gly Ser			cee cca qua gan Gin Pro Ala Asp	5952
20					tar ctg ctc cap Tyr Leu Leu Glo 2000	6000
25					osa oce cca ccs Les Pro Pro Pro 2015	6048
30	Gly Arg Sem	cut utg gut Pro Leu Ala 2020	cag agg cet Glo Arg Pro 2023	Lou Arg Arg	caq qoa gna ata Gin Ala Ala Ile 2030	5096
35	agg act gas Arg Thr Asp 2035	Ser Leu Asp	gtg cag ggc Val Gin Gly 2040	Leu Gly Ser	cgg gaa gac ctg Arg Glu Asp Les 1945	6144
40		Val Ser Gly			ngg too tos too Arg Ser Ser Ser	6192
***					too ggc atc cay Ser Gly Ile Gin 2080	6240
43	aqo asa qto Ser Lys Val	ton and cac Ser Lys His 2085	ato ogo oto Tie Ary Lau	cca goc cot Pro Ala Pro 2090	tgo oca ggo otg Cya Pro Gly Lau 2093	6289
50	Glu Pro Ser			Gla Thr Arg	ago ago tra gag Ser Ser Leu Glu 2110	6336
55		Glu Leu Ser		Gly Asp Leu	ctt ccc age age Leu Pro Ser Ser 2125	6384
60	caq qaa qaa Gin Giu Giu 2136	Pro Led Pha	cca mga gad Pro Azg Asg 2135	ctg asg asg Leu Lys Lys 2140	tgo tac agt gra Cys Tyr Ser Val	6432
CHA			Arg Arg Pro		ons get gea cag Leu Asp Glu Gin 2160	6490

Arg arg Has ser Ite Ala Val Ser Cya Led Asp Ser Gly Ser Gla Sro 2165 J ogo ota tgt coa agh occ toa agc oto gag agn cas och att ags ggt 437 Arg led Cys Pro Ser Pro Ser Ser Led Gly Cay Gln Pro Led Gly Cly Clas Cool agg agc cag cot aag aaa cto agc cto agt atc tot att 6624 Oot ggg agc cag cot aag aaa aa cto acc cas cot agt atc tot att 2190 Pro Gly Ser Arg Pro Lys Lys Lys Led Ser Pro Pro Ser Its Sar Ita 2200 ggs ooc cog gag ago aag got oto gg coc cca tgo agt oct ggt gt 6677 Asp Pro Pro Glu Ser Gla Gly Ser Arg Pro Pro Gly Sar Pro Gly Val 2210 Log coo agg agg agg agg agg oog got agt gac ta ag gat cac tog gt coc cys Led Arg Arg Arg Als Pro Ala Ser Asp Ser Led Ser Val 2220 2206 2216 2226 2236									23.4							
Any Leu Cys Pro Ger Pro Der Ser Leu Gily Gily Gin Pro Leu Gily Gily 2185 2186 2185 2186 2185 2280 2285 2286 228		egg aga	oac to: His Ses	lie	gtt Ala	gec Val	agt Ser	Cya	2.813	авс Авр	agc Ser	990 917	Ser	313	ect	6328
ggs oze cog gag age age gag ggg ggc ggg ggg ggg cag cog age ggg ggg ggg ggg ggg ggg ggg ggg gg	ž		Cys Pi:	Ser			Sex	Leu				800	Leu			6376
Asp Pro Pro Giu Ser Gin Giy Ser Asg Pro Sro Cys Ser Pro Giy Vel 2215 1 2210 1 2210 1 2210 1 2210 1 2210 1 2211 2 2211 2 2212 2 2212 2 2213 2 2212 2 2213 2 2213 2 2213 2 2213 2 2213 2 2213 2 2213 2 2213 2 2213 2 2213 2 2215 2 2215 2 2215 2 2215 2 2215 2 2216 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	10	Pro Gly	Ser Arc	Pac Pac	aag Lys	Lys	Lys	ctc Lev	agc Ser	cca Pro	220	Sec.	atc	sar	atn	6624
CVS LEW ANG REG REG ALS PRO ALS EN ASP See Lys Asp Fro Set Val 2225 2236 2235 2236 2235 2235 2235 2235	1.5	Asy Pro	eeg gaq Pro 613	ago Sez	Gla	Gly	tot	ogg Arg	920 000	35.0	Cys	age Ser	eer Pro	ggt Gly	VeT dec	6672
ter age occ off gar age age got gar that one for one age age gar Ser Ser Pro Lua Lags Ser Thr Ale Ala Ser Pro Ber Pro Lua Lags App 2255 25 acg off agt off the ggr fift tot tot gar one age gar gar ger complete the Leu Ser Gly Leu Ser Asp Pro Thr Aep Met Asp Pro 2250 30 c210 > 3 c210 > 5 c2	261	Cys Leu	agg agg Arg Arg	arg a	Ala	810 003	gcc Ala	agt Ser	Asp	Sec	eeg Lys	yab dar	000 210	582	Val	6720
The Leu Ser Leu Ser Gly Leu Ser Ser Amp Pro The Amp Mei Amp Pro 2260 2270 30 c210	4.0	tot ago Ser Ser	ecc ot: Pro Les	Asp.	agc Ser	acg Thr	get Ala	Ala	Sez	000 Fea	tee	540 009	Lys	Lys	gan Asp	6768
c211 5741 c212 DNA c213 Rattus sp. 35 c220 c221 CDS c222 CDS c22 CDS c222	25	ecg etg The Leu	Ser Lei	s Ser	gly	ttg Leu	Ser	Ser	gac Asp	bio ccs	aca	Asp	Met.	gec Asp		0816
c221> CDS c222> (1)[6741] 400 8 410 atog gac gag gag qag gat ggs gcg gyc gcc gag gag tog gac cag coc dat gag gac gag gag gag gag gag gag gag gag	30	<211> 60 <213> 00	EA.	٠.												
40 atg gar gag gag gag gag gat ggs gcg gyc gcc gag gag tcg gyc cac ccc Met Asp Giu Giu Asp Giv Ala Giv Ala Giv Giv Ser Giv Gir Fro 10 10 10 15 10 10 10 10 15 10 10 15 45 Arg Ser Phe Thr Gin Leu Asn Asp Leu Ser Giv Ala Giv Giv Grag gac gag gag cac gag cac gag cac gas cac gac cat cac gac cat giv Giv Ala Giv Giv Arg Gir 20 20 20 20 20 20 20 20 20 20 20 20 20 2	35	<221> CE		§3)												
45 Arg Sar Phe Thr Gin Lau Arn Asp Leu Ser Gly Ala Gly Gly Arg Gin 20 25 25 25 25 25 25 25 25 25 25 25 25 25	40	atg gac Met Asp	gag ga	a Glu					Ala					Gin		48
Sign Pro Gly Rer Thr Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala 45 gag ggg ctg deg tac deg geg cta gee deg gtg gtt tro tto tac ttg flu Sly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu 50 ago cag gag dag deg deg ago tg ggg tgg tg cto de seg gtg tt to tto tac ttg flu Asp Ser Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Ash 65 cog tyg tto gag opa etc agt stg otg gto tot tot da set cgt gtg fro Trp Phe Glu Arg Val Ser Het Leu Val Ile Leu Leu Ash Cys Val	45	out ago Arg Ber	Phe Th	e Gla	cto	aac Asn	gac Asp	Leu	too	Gly	gcc Ala	Gly	Gly	agg	Cag Gin	96
610 619 Les Pro Tyr Pro Ala Lao Ala Pro Val Val Phe Phe Tyr Les 55 50 50 60 55 60 55 60 55 50 60 55 50 60 55 60 55 60 50 60 60 60 60 60 60 60 60 60 60 60 60 60	30	ggg cog Gly Fro	Gly Se	g acq c Thr	gaa Glu	aag Lys	Asp	Pro	ggo Gly	ago Ser	gcg Ala	Asp	tec Sør	gag Glu	gog Ala	144
ago cay gan ago ono cog ogg ago tog tgt oto ono ang gro ogt aac 240 Ser Sin Asp Ser Ang Pro Ang Ser Trp Cys Leu Ang Thr Vai Cys Ash 65 n 25 op ago oto ago oto ago oto gro oto ago oto	35	91v 91y	crg cc Leu Fr	g tac D Tyr	5to ccà	Ala	Land	Ala	Pro	gtq Val	Vai	She	tto	tac Tyr	ttg Leu	192
Pro Trp Phe Glu Arq Val Ser Met Leo Val Ile Leu Leo Asn Cys Val		Ser Gin			Pro					Lou	Azg				Asn	240
	60	eeg tyg Pso Tsp	tic ga Phe Gl	a Arg	Val	agt Ser	atg Met	otg Let	Val	Tie	ctt	cts Lau	aac Asn	Cys	Val.	233

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	The	Leu	917	Met 196	Fha	Arg	220	С; а	01s 105	Asr	Ila	Ale	Cys	Asp 110	Ser	ain	
3	aga Rig	ego Cys	ogg Arg 115	atc Ile	7.60 0.03	cag Gln	gud Ala	tiv 25e 120	get. Asp	gac Asp	tre	ato lle	111 Phy 123	ycc Ala	itc Pne	tet Phe	384
10	gct Ala	909 981 130	gaa Glu	atg Met	Awi ded	gtg Yal	aag Lys 135	atg	gtg Val	gee Ala	ttg Lea	330 Gly 140	811	tit Bha	ggg Gly	asq Lys	432
13	aad Lys 145	tgt Oys	tac Tys	ong Leu	gga Gly	gac Asp 150	act Thr	tgą Try	aec Asn	Arg	ctt Lma 155	gac Asp	711 Pbs	tto Pha	att Tie	grc Val 160	490
10	att	gca Ala	27 Å 233	arg Net	ong Leu 185	gag Glu	tat Tys	sec	bng Leu	gac Asp 170	ctg	cag Glo	880 830	gts Val	aga Ser 175	rtc Phe	528
20	ser	gca Ala	gtc Val	agg Arg 180	acs Thr	gta Val	agt Arg	gtg Val	otg Leu 165	oga Arg	pro	oto Leu	agg Arg	gcc Ala 190	att	aac Asc	\$76
25															acc Thr		624
30			Leu												ttc Phe		672
35	ttt Phe 235	ggc Gly	at.c	gtg Val	gge Gly	gto Val 230	cag Gln	crg Leu	tgg Trp	gça Ala	gga Gly 235	rec	cet Les	aga Arg	aac Aso	agg Arg 240	726
33	tga Cys	tts Pne	arc Leu	occ	gag Glu 245	aac Asa	ttc Phe	agc Ser	ctc Leu	ecc Pro 250	otq Leu	agc Ser	gtq Val	gac Asp	ctg Leu 255	gag Glu	768
40	ent Pro	tat Tyr	tac Tyr	089 618 260	aca The	qag Giu	aat Asn	gag Glu	gac Asp 265	gag Glu	ser	ecc	tta Pne	and ile 270	Cys	tor	816
4.5	çaç Gln	ect	ogg Arg 275	gag Glu	aat. Aso	G) A GGZ	atg Mes	aga Arq 280	Ser	tgo Cys	agg	agt	gtg Val 285	Pro	aca Thr	ctq Leu	864
50													Asp		gag Glu		912
<i>33</i>	tat Tyc 305	asc Asn	agt Ser	too Sec	age Sec	aac Asn 310	acc	acc	tgt Cys	gt: Vai	aac Asn 315	tgg	aac Aen	cag	28.c	tat Tyr 320	960
33	acc Thr	asc	t q c Cys	tat Sex	gog Ala 325	ggc	gag Glu	Cac His	aac Asn	9ro 330	Phe	aaa Lys	89 Å ååe	gec Ala	ato Tla 335	aac Aso	1003
60	tit Pha	gac Asp	aac Asn	att Ile 340	Gly	tar Tyr	geo Ala	rgg Tep	ato Tie 345	Ala	ato	ttc Phe	cag Gln	gto Val 350	ate	aba Thr	1956
	ata	gag	ggo	rgg	gtc	gac	atc	ar.g	130	non	ārs	atq	980	got	cac	tad	1104

	Leu	Gla	51y 355	Tep	Val.	Rep	lls	Mei 360	774	Phe	Val	Mec	Азр 345	8,13	313	Set		
5	nso Pha	tac Tyr 370	aac Asn	tto Pbe	ato	tao Tyr	550 250 375	SEE Tim	ate Sev	ct c beu	ato	atc Iie 380	gtg gtg	già. âar	tec Ser	tt: Phe	1152	
10	256 258 388	arg Met	atc Iie	aac Aso	ctq Leu	tqs Cys 390	ctg	gtq Val	qtq Val	att lie	gee Ala 395	acg Thr	Cag GLD	tto Phe	tac Ger	gag Glu 400	1500	
1S												cag Gin					1248	
2.0	ctg Leu	tab Ser	aat Asn	gct Ala 420	agc Ser	acc Thr	otg Leu	gca Ala	ago Ser 425	tro Phe	not Ser	gag Glu	510 508	990 GLy 430	ago Ser	ngc Cys	1296	
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33	ago Ser	Cys	act	oge Arg	tos Sen 485	osc His	agr Arg	cgt Arg	ctq Leu	tct Sex 490	gts Val	cac Ris	cac His	atg Leu	gtc Val 495	cac 816	1488	
3.0	Ris	car Ris	cac His	cac His 500	Siz	cat His	Ris	cac	tac Tyr 505	cac His	ctg Leu	ggt Gly	aat Asn	999 Gly 510	acg The	Leu	1536	
40	aga Arg	gtt Val	coc Pro 515	ogg Arg	gcc Ala	age Ser	ccs Pro	gag Glu 520	atc Ile	çag Gln	gac Asp	agg Arg	gat Aap 525	qcc Ala	aat Ass	ggg Gly	1584	
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50	ggc Gly 545	cet	pcg Pro	Arg	ggt	gcg Ala 550	gag Glo	tot Sez	gta Val	eac His	agc Ser 555	ttc Phe	tac Tyr	cat His	gct Ala	gac Asp 560	1680	
55	Cys	cac	ttg Leu	gag Glu	004 Pro 565	gtc Val	ogt Arg	tgc Cys	cag Gln	gca Ala 570	Pro	oot Pro	sos Pro	aga Arg	cga Cys \$78	ecs	1728	
	teg Ser	gag	gca Ala	to: Se: 580	qqt Gly	agg	act	gtg Val	99t 91y 585	agt	ggg Gly	aag Lys	gtg Val	tac Tyr 590	Pro	act	1775	
60	gtg Val	cat Wis	acc Thr 595	Ser	eet Pro	eca	cca Pig	gag Glu 600	ota Ile	ctq	aaq Lys	gat. Asp	aaa Lys 605	Ala	ata Leu	gtg Val	1824	
	gag	959	god	ece	ago	cet	ggg	200	900	acc	ctc	-800	aço	rrc	830	ato	1972	

	Glu	Val 810	Āia	Pra	Sex	320	G3 y G33	250	220	The	1.94	Thr 620	Ser	208	Asn	Tin	
5	doa Pro 625	oct 9ro	G13 gaa	ece Pro	tta Pne	agc 9ar 630	tot Sep	atg Met	cac Sis	aaq Lys	cto Leu 635	crg Leu	gag Glu	aca Thr	cag Gin	agq Ser 646	1920
10	acg Thr	gga Gly	goc Ala	tga Çys	Cat Ris 845	eqc Ser	too Ser	tga Cys	aas Lys	atc 11s 650	too Ser	age \$er	oot 800	CA4	toc Ser 695	aaq Lys	1949
1.0	gça Ala	gac Asp	agt Sec	gga G1y 660	gcc Ala	ege Cys	999 Gly	520 ccd	gad 830 665	agr Ser	cya tgt	550 250	tac	tgt Cys 670	gec Ala	cgg Arg	2016
15	aça Thr	gga Gly	gca Ala 675	gga Gly	gaq Glu	cça Pro	gag Glu	500 507 680	gct Ala	gac Asp	cat His	gec Val	acq Met 685	oct Pro	gac. Asp	tca Ser	2064
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25	oro Leu 705	ogg Arg	gat Asp	ecc Pro	cac His	agc Ser 710	Yrd cdd	egg	aga Arg	oaq Gln	ogg Arg 715	agc Ser	otg	ggc	cca Pro	gat Aap 726	2160
30					tot Ser 725						AZG						2208
35	tke Phe	egg Arg	aag Lys	atc Ile 740	gta Val	gat Asp	aģc Ser	aaa Lys	tac Tyr 745	Phe	ggc Qly	cgg	Gly	atc 110 730	atų Met	ate Tie	2256
20	gcc Ala	ato	ctq Leu 755	gtc Val	aat Asn	aca Thr	otc Leu	age Set 760	atg Met	ej A ååa	ato	gag Glu	tac Tyr 765	cac	gag Glu	Gin	2304
40	Pro	gag Glu 770	gag Glu	sts Lea	acc Thr	aac Asn	gcc Ala 775	Ctg Leu	gae Giu	atc Ile	agc Ser	aac Asn 780	atc Ile	gec Val	exe Pne	acc	2352
45	ago Ser 785	Leu	tto	gcc Ala	ttg	gaq Glu 790	atq Met	arg Leu	erg Leo	aşa Lys	ctg Leu 795	cet Leu	gtt Val	tec	ggt	esc Pro 860	2460
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35	gso Val	ato	agr	gtg Val 820	tgg	gag Glu	Bot	grg Vai	ggc Gly 825	caq Gln	çaq Glo	G) gga	ggt Gly	830 617 ååc	Fen	neg Ser	2496
33	gtg Val	cty Leu	cyg Arg 835	Thr	ttc Pha	ege Arg	teu	arq Met 840	Asg	gtg Val	ctq	aaq Lys	ctq Lev 845	ge g	Arq	ttc Pbe	2544
60	ctq	009 910 850	Ala	ctg	cag	91.8	caq Gin 855	1.00	grg Val	grg Val	ata teu	atg Met 960	aag Lys	acc	atg Mat	gas Asp	2592
	ààC	gtg	ģee	acc	KEU	190	ang	ctt	ete	atg	atg	ttc	ato	223	arc	ctc	2645

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	Asn 865	7e1	R).a	Thr	Pha	Cys 870	Met	La	62 2	len i	Mer.	1.00 875	Ph	e i	120	Phe	112	26 88	9	
3	açı. Ser	att	ctq	ogiz Gly	atg Mec 883	813	1000	tt Ph	T	cr m 2	tqc Cya 890	aaq Lys	et Pr	(C)	ion Nie	eet Sar	gae 61u 895	Ar Ar	9	2689
10	gae Asp	999 51y	980 Asp	acg The	1.40	A.c.	gar Ast	c cq	1	aag Lys 905	eat Asn	tro Phe	ge As	150 100	Ser Ser	ceq (eu 918	orc usl	tg	is is	2736
	gee Ala	acc	gto Val 915	Luz	gtc Val	phe	Gas Gl:	3 7 3	00 00	etg Leo	ant The	gas	6		gac Asp 925	tqq Tro	aat	88	88	3.184
15	gec Val	070 Leu 930	Typ	aac Asr	ggc	art Met	93	3 23	er oc	aca Thr	t og Ser	Se:		99 80	gct Ala	gat	ott	2	yr yr	2832
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25		goo Ala	at'	. ಫರ ೬ ಓಡಾ	gts 1 Val	12.1	a qq	a t	ro ne	cag Glo	908 Ala 970		9 9 0 9	ga 1y	gas Asp	goc Ala	acc The 978	a L	Àa Rđ	2928
30	tst Ser	gar Gl.	g to a Se	a qa x Gl	n Fr	c ga c Aa	t tt p Pr	c t	et he	tog Set 985		e aq	k 9	pg ls	gat	990 874 33c	gat Ass	; g	gg	2976
00	gan Asp	aq Ar	s aa g Ly 99	q as		o tt g Le	g gs a Al	res or	tg eu	9.104.00	gel Al	t et	g g		gaa Gl: 1005		gc;	3 9	ias Lu	3024
35	cta	ng Ar	a aa g Ly	g ay	c ct r Le	t tt u Le	10:	0 6	2×0	otc Les	at 11	s at		385 Mis 020		gos Ala	go a Al	g a	rhz	3072
40	000	at Me		e ca	19 E.	C 46	18 3	go 1 er 1	cc Ser	Sex	ac Th	a q r G: 10	4.8	gtg Vai	999	g ga y Gl	a gc a Al	a :	stg Leu 840	3120
45			t g	ja ta iy St	rt qq or As	ng A	gt a eg T	cc a	agi Sei	: 89: : 58:	c ag c Se 105	4	gg ly	t.cc Ser	gc Al	t ga a Gl	g cc u Pr 105	0 5	gga Gly	3168
30	gs Al	t gr a Al	ic c la fi	ac ca is 8.	13 0	eg a	tg a et l	28	tg: Cy:	00 Pr		a a	er gr	900 Ala	: ag : Ar	g ag g Se 107	c to r Se 0	c	eeg Pto	3216
	ça Hi	C &:	gt c Br P	ce t		gt 9 er A	og ç la A	12.0	ag Se 68	7 22	e to	id g	cc hr	age Se:	ag : Ar : 108		e to	ex.	agc Ser	3264
55	ag Ar	g a g A	ac a	go c	tg g eu G	ga ë ly A	rg 2	100 110	25	c aç v 38	o o	ca a eu l	ag ys	cg Ar	g aç g As	g Se	ic ci ir B	eg eg	ago Ser	3312
60	G			gg a	gg t	er :	eu 10	etg Læu	50	1 99 1 G)	a g y G		gc Sly	ca Gl	g g: n G:	ng as	gt o er G	ag Lu	gat Asp 1120	3360
			ag :	aa e	igt t			gag	Ğ.s	er aq	34 8	ce s	ago	0.0	a g	ca g	gc a	gε	gac	3408

	Giy Glo Glo Sar Bey Glo Gio Asp Arg Als Ser Amo Ala Siy Ser Aap 1135 1138	
ž	cat ege can agg ggt tee teg gaa egt god gee aag agt toe tit gae Bis Arg Ris Arg Siy Set Lee Glu Arg Glu Ala Lya Ser Sex Pha Asp 1140 1145 1150	3456
10	cig cot gad act cig dag grg odd 33g cig cac cgc ais gcc ago ggc Leu Pro Rap Thr Leu Glo Val Pro Gly Leu His Ary Tor Ala Sec Gly 1155 1169 1165	3564
	egg agd tot god tot gag dat das gad tot aet god hay tog got toa Arg Ser Ser Aim Ser Glu Ris Glu Rep Cye Arm Gly Lya Ser Ala Ser 1170	3552
15	ggg cgt try goc ogc acc cry agg act gat gab bbb oak org gat ggg Gly Arg Leu Ala Arg Thr Leu Arg Thr Asp Asp Pro Glb Leu Asp Gly 1189 - 1190	3600
20	gat gat gar dat gat gag gge eat otg agc aaa ggg aaa cgc ata cab Asp Asp Asp Asp Asp Glu Gly Asn Leu Ser Lys Gly Glu Arq Lie Gln 1205 1210	3648
25	god igg gic aga too ngg mit oot god igi igo oga gag ega gat too Ala Trp Val Arg Ser Arg Leu Pro Ala Cys Cys Arg Glu Arg Asp Ser 1220	3696
30	tgg tcg ged tat atc ttt cct oot dag tca agg ttt ngg ctn dtg tgc fip Ser Ala Tyr Ile Phe Pro Pro Glo Ser Arg Phe Arg Leu Leu Cys 1235 1240	3744
	can egg ato ste acc can aag atg ttt gas cat gig ste etc gio atc sis arg lie lie Thr His Lys Met Phe Asp His Val Val Leu Val Tle 1250	3792
35	ato tto oto mae tgt ato aco ato got atg gag cgu cho amm att gac lle Phe Leu Aso Cys Ile Thr Ile Ala Met Giu Arg Pro Lys Ile Asp 1265 - 1270 - 1270 - 1275 - 1275 - 1275 - 1280	3840
40	one can ago got gay ego ato the org acc of the acc tak ato the Pro Hie Ser Ala Glu arg lie Phe Leu Thr Leu Ser Asa Tyr lie Phe 1285 1290 1295 1295	3888
45	acg gca 4tc ttt cra gct gaá atg aca gtg aag gtg gtg gca ctg ggc Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala Leu Gly 1300	3936
30	tgg tgc ttt ggg gag cag occ to org ogc agc agc tgg dat gtg ctg Trp Cys Phe Gly Glu Glo Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu 1325	3984
	gac que tig etg gig etc atc tez gig atc atc gac atc eng gic too atg hap Gly Leu Leu Val Leu Tie Ser Val Ile Aep Ile Leu Val Ser Met 1330 $$ $$ $$ $$ $$ $$ $$ $$ $$ $$	4032
3.5	gto too gan age ggo acc aag atv ott ggo atg stg agg gto otg sgg Val Ser Amp Ser Gly Thr Lys Ite Leu Gly Ner Leu Arg Val Leu Arg 1345	4080
60	ctg dtg dgg ace ctg dgt des dte agg gte ate age byg gde dag gga Leu Leu Arg Tra Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gin Gly 1375 1375	4128
	ctg aag ctg gtg gta gag act ctg atg toa too ctc aas coo att gg:	4176

PCT/US98/23161 70

	Leo Mys		380	Va:	3.5	201		1385	Sec	Ser	Latti.		1390	7.2.4	615	
5	asc at: Ash Ile	qtq Val 1395	gtc Val	act Tle	tigo Cys	tgt Cys	get Ala 1400	tto Phy	770 208	arc Tle	att	ttt Phe	21 Å åås	att Ele	ctc	4224
10	Gly Vel Gly Vel	cag Gla	cto Seu	ttc Phe	678	999 GLy 315	aag Lys	tic Phe	ttc Pae	Val	Eqt 098 420	ckg Gla	gat gat	2)a 3#8	gat Asp	4272
15	acc agg Thr Arg 1425			The					Cys					Tyr		4320
,,	igg gtc Trp Val	cgg Arg	Sis	889 Lys 1445	kan Tyr	aan Asq	ttt	Asp	aac Asa 450	atg Leu	ggc ggc	oaq Gin	318	otg Seu 1455	atg Met	4369
20	tee etg Ser Leu	Phe	gtg Val 1469	ctq Leu	goo Ala	to: Ser	Lys	gat Asp 1465	ggt Gly	tgg Trp	get Val	qsA	anc Ila 1970	acq Net	tar Tyr	4416
25	gat ggg Asp Gly					Gly					820					4464
30	aac ccc Asn Pro 1490	Trp			Leu					2he						4512
33	rea bet Pne Phe 1903	gtc Vai	ctq Lea	Asn	atg Met 1510	ttt Phe	gig Val	ggc Gly	Val	gtg Val 1515	gtğ Val	gag Glu	aac Aan	202	cat Ris LS20	4560
30	eag tạc Lys Cys	aga Arg	Gin	cac His 1325	cag Gln	Glu	gaq Glu	Glu	gag Glu 1536	geg Ala	agg Arg	Arg	Arg	gag Giu 1535	gag Glu	4608
40	aag cga Lys Arg	Leu	099 Arg 1840	aqg Arg	eig Leo	Glu	Łys	aag Lys 1945	aga Arg	agg Arg	aaa Lys	Ala	cag Gln 1550	tgć Cys	Lys	4656
45	con sec Pro Tyr					Sez					Leu					4764
50	tgt acc Cys Thr 1570	502	cac His	tac	Leu	gac Asp 1575	c'tc Leu	tcc Phe	acc Tle	The	ggt Gly 1580	gto Val	atc	677. 888	ctg Leu	4752
35	aac gtg Asn Val 1585	gto Val	act Thr	Met	900 Ala 1590	atq Met	gaa Glu	cat His	Tyr	caq Gln 1595	Glo	Pro	cag Gin	Tie	ctg Leu 1600	4800
~ ~	qac gag Asp Glu	gat	Leu	aag Lys 1605	Tla	tgo Cys	ast Asn	Tyx	atc Ila 1610	trt	aco Thr	gec Val	Tie	tot Pha 1815	gtc Val	4848
60	tit gag Phe Glu	Ser	gtt Val 1620	ttc Phe	aaa Lys	ctr Leu	YAL	goo Ala 1625	ttt	GTÅ ddc	2 to C	Arg	Arg 1630	ero Pha	etc Phe	4896
	cag gas	agg	tgg	áác	cag	22.3	gaç	org	get	att	gr3	251	ceg	tec	20.2	4944

Cha Asp Ang Tro Asa Cha ben Asp les Ala Tim Val Les Los Ser Ile

	1635	110 420 010	1610	160		
3	eng ggo atd Mat Sly the 1850	Thr Leu Glu	gaç att gaç Old The Shu (655	gtc eet ccg to Val Axn Leu Se 1860	ng ong ood ats ng Lau Pro Ile	4992
10	ear one acc Asa Pro Thr 1665	atc atc egt lie lie Arg 1670	atr atg agg The Mat Arg	gtg cir cgc a: Vai Leu Arg I. 1675	r qot oga gtt Le Ale Arg Val 1688	5040
13	ong asg ong beu Lys Leu	trg eag etg Leu Lys Met 1685	Ala Val Gly	ang ogg gea e Met Arg Ala id 1590	ig etg cac acg at Leu Hie Thr 1695	5088
45	Val Met Glo	god otg occ Ala Leu Pco 1700	cag gtg ggg Gin Yal Gly 1705	aac etg gga c Asn Leu Gly Le	ii dec tto atg nu Lew Phe Met 1710	5136
30		Phe Ile Pho		ggc qtq gag c Gly Val Glo Le 17:	no Phe Gly Asp	5184
25		Asp Glu Thr		gag ggc ttg g Glu Gly Leu G 1740		2232
30				ctg acc ctc to Lew The Lew Pi 1753		5280
35	act ggs gac Thr 5ly Asp	asc tgg aar Asn Trp Asn 1765	Gly Ile Met	aaq qac acc c Lys Asp Thr L 1770	to egg gan tgt au Arg Asp Cys 1775	5338
	Asp Gla Glu	tot acc tgo Ser Thr Cys 1780	tac aan apt Tyr Asg The 1785	gto ato too o Val lie Ser ?	ot ato tac crt ro lie Tyr Phe 1790	5376
40	gug too too Val Ber Phe 1795	Val Led Thr	god dag tit Ala Gin Phe 1800	grg crq gtd a: Val Leu Val A: 18	so Val Val 11+	5424
45		Mer Lys Sis		ago aan aaa g Ser Ash Lys G 1820		5472
50	gag gcc qag Giu Ala Glu 1925	oto geg goo Leu Giu Ala 1830	gag stg gag Olu Leu Glu	ctg gag atg a Leu Glu Met L 1835	ag acg ctc ago ys Thr Leu Ser 1840	5520
55			Leu Gly Ser	occ ttc oto to Pro Phe Leu I 1850		5568
	Glu Giy Val	aac agt act Asm Ser The 1060	yac ago cot Asp Sar Pro 1865	and cot ggg g Lys Pro Gly A	or coa cad acc le Pro His Thr 1870	5616
60		The Gly Ala		tto too cit q Phe Set Lea G 18	lu His Ero Thr	5664
	atg gta ccc	cac ccc gag	gag gid coa	gua cod ota q	go cos gas ong	2315

	Met Yal Fro Ais 8 1990	Pro Glu Glu Vel 1895	9co Vel Pro Leu Giy Ero Asp Leu 1900	
ŝ	cr; act grg agg : Let Toc Yal Arg ! 1901	aag tot ggt gto Lys Ser Gly Val 1816	ago ogg ang nao nut ong ond aat Ser Ang The Ris Ser Leo Pro Ann 1915 1920	5750
10	Asp Set Tyc Met (tgo ogs mat ggg Cys Arg Asn Gly 925	ago act yor gag aga too ota yya San The Ala Giu Ary Ser Leu Giy 1930 1935	3808
13	cat agg ygo igg Ris Arg Gly Trp (1940	Sly Leu Pro Lys	got cag tos ggn nor etc tig to: Ala Sic Ser Gly Ser lie Leu Ser 1950	3856
1.7	gtt cac tot caa o Val his Ser Glo 1 1935	oca gos gan acc Pro Ala Asp Thr 1960	age tgc atm mts cap cit coc ass Ser Cys lie Leu Gin beu Fro Lys 1965	5904
20	ger gro cac tat of Asp Val His Tyr 1 1970	cig car dag oct Leo Leo Gln Pro 1975	cat ggg get eec acc tog ggc get His Gly Ala Pro Thr Trp Gly Ala 1980	5952
25			age too cot otg got dag agg cot Arg Sar Pro Leu Ala Sin Arg Pro 1995 2000	6000
30	Leu Arg Arg Gin /	gca qos ata agg Ala Ala Ile Arg DDS	act gac too org gat gtg cag ggc Thr Asp Ser Leu Asp Val Gin Gly 2016 2015	6048
33	Ten GTA Bet Wid (Glu Asp Leo Leo	toa gag gte agt gyg soo too tga Ser Glu Yal Ser Cly Pro Ser Cys 1025 2030	6096
33	cct ctg ace egg : Pro Leu Thr Arg : 2035	ton tom too tto Ser Ber Ser Phe 2046	tgg ggc ggg teg agc atc caq gtg Trp Gly Gly Ser Ser lle Glo Val 2045	6144
40	cag cag cgt tcc (Gln Gln Arg Ser (2050	ggc arc cag agc Oly Ile Gln Ser 2085	ass gto too asg can ato ngm ong Lys Val Ser Lys Ris Ile Arg Leu 2000	6192
45	cca gcc cot tgo Pro Ala Pro Cys 2065	cca ggc ctg gas Pro Gly Leo Glo 2070	ccc age tgg gcc sag gac cct ccs Pro Ser Trp Ala Lys Asp Pro Pro 2075 2080	6240
50	Glu Thr Arg Ser	ago tto gag ctg See Leu Giu Leu 085	gad any gag ong ago ngg ant nos Asp Thr Glu Leo Ser Trp Ile Ser 2090 2093	6268
55	ggs gao etc ctt : Gly Asp Let Leu : 2100	Pro Ser Ser Gln	gam gam ecc etg ttm nom egg gao Glu Glu Pro Leu Phe Pro Arg Amp 2185 - 2116	6336
גנ	ctg asg asg tgc Let Lys Lys Cys 2115	tan agt gta gag Tyr Ser Val Glu 2120	acc cag age tge agg agg agg att Thr Gin Sar Cys Arg Arg Arg Pro 2125	6384
60	ggg ttc tgg cta : Gly Phe Trp Leu : 2130	gat gas cag ogg Asp Glu Gin Arg 2135	aga cac too atc gct gtc agc tgt Arg Hix Ser lie Ala Val Ser Cya 2140	6432
	ctg gae ago ggo	ree caá doc ego	ata tot dda ago nio nea ago uta	6480

	leu A 2145	sp 3	Sec	GLY	Ser	Gin 150	Pro	yea	Leu	Cys 2	Pro 195	Ser-	820	365	Ser	ies 160	
3	Gly 6	ge d ly s	iaa Glo	850	ctt Leu 165	999 619	214 dar	005 Ped	GLY	ago Ser 170	Arg ogg	eat	aag Lys	Lys	aaa 175	cee Lea	6528
70	ago o Ser P	ca c	exo.	agt Ser 180	arc	ser	ata Ile	Asp	200 Pro	oog Pet	610 610	agc Ser	CIB	gga Gly 196	tct Ser	Arg Cgg	6576
	edd d Pro P	ro (igo Cys 195	agt Sez	pro	ggt Gly	Val	tgt Cys 200	Leu	agg Asg	agg Arg	Arg	gcy Ala 205	ccg Pro	ger Alla	ser	6624
15	gac c Asp S 22	er i	aag Lys	gat Asp	ere Pro	282	gtc Val 215	tod Ser	agc Ser	Pro	Ten:	gac Asp 220	ತಿರ್ಧ ಕರ್	acg Thr	got Ala	gec Aie	6672
20	tca c Ser P 2225	cc i	bna Ser	eca Pro	Lys	aaa Lys 230	gac	acg The	cty Leu	Ser	ctc Leu 235	tot Ser	ggt Gly	trg	Ser	not Ser	6720
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35	<220> <221> <222>	CD		613%	2)												
40	<490>	3															
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43	Met T	hr i	Glia eec	Gly	Ala 5	Arg	Ala	Aia	Asp	Glu 10	Val	Arg	Val ecc	Pro	Leo 15	Gly	48 96
43	Met T	ge ge	Gla ecc Pro	Gly tgg Trp 20	Ale 5 ccc Pro	Arg tgc Cys	Ala gga Gly	Ala ger Val	Asp ggt Gly 25	Glu 10 ggg Gly	Val ggc Gly tro	gtc Val	val ecc Pro	gga Gly 30	Leo 15 gag Glu Qtg	Gly ccc Pro	
	Met T 1 290 c Arq A	iga iga iga	Gli ecc Pro gcc Ala 38	Gly tgg Trp 20 ggg Gly agc	Ala 5 ccc Pro acg Thr	Arg Cys uga Arg	Ala ggc Gly ggc Gly	Gtt Val 932 934 40	Asp ggt Gly 25 ggg Gly	Glu 10 ggg Gly ggg Gly	ggc Gly tro The	Arq gtc Val gaq Glu gaq	val ccc Pro ctc Leu 45	gga ggy gga gga gga	Leo 15 gag Glu qtg Val	Gly ccc rca Ser gan	96
43	met T	ac sec	Gli ecc Pro gcc Ala 35 Glu cag	Gly tgg Trp 20 ggg Gly agc Ser	Ala 5 ccc Pro acg Thr ccg Pro	Arg Cys cga Arg Gog Ala	Ala ggc Gly ggc Ala Sa	Ala ger Val gga Gly 40 gag Glu	Asp ggt Gly 25 ggg Gly ogo Arg	Glu 10 ggg Gly ggg Gly tgc Cys	yal ggc Gly tro The gcg Ala	Arq grc Yal gag Glu gag Glu 60	val ccc Pro ctc Leu 15 ctg Leu Leu	gga Gly 30 ggc Gly ggc	Leo 15 gag Glu grg Val qcc Ala	Gly cou Pro rea Ser gan Asp	96
43 50	Sec 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	hr sgs sgs sgs sgs sgs sgs sgs sgs sgs sg	Oli ecc Pro qcc Ala 35 Glu cag Cln	dly tag Trp 20 ggg Gly agc Ser cgc Arg	Alassocia acara con acara	arg Cys uga Arg Gog Ala cog Pro ang	Ala ggc Gly gcc Ala Sa Eac Tyr	Ala ger Val gga Gly cog Fro	Asp ggt Gly Zs ggg ggg ogo Arg goo Ala	Gin 10 999 619 999 519 540 Cys teg Leu	yal ggc Gly tro She gcg Ala gcg Ala	Arq grc Yal gag Glu goc Ala tgc	val ecce Pro ctc Lev 45 ctg Leu acg Thr	gga Gly 30 ggc Gly ggc Val	Leo 15 gag Glu grg Val ger Ala tro	Gly course rea Ser gas Asp the 80 gso	96 144 152

				100					105					110			
j	ega Cys	geg 7al	acc The 115	cng Leu	G1A aåc	atg Met	ttc Phe	299 Arg 120	220	ngt Cys	gag Glu	gac Asp	911 Val 125	gag Glu	bgo Cys	ggs Gly	384
1.00	toc Ser	gag 010 130	aqa 82g	nge Cys	aac Asq	atc	ctg Leu 135	gaç Glu	god Ala	204	gac Asp	300 Ala 140	ilo Phe	att	eto Phe	91# 30¢	432
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15	999 61y	cag	aag Lys	tgt. Cys	tac Tyr 165	otq Leu	ggt	gac Asp	acg Thr	tgg Trp 170	aac Ass	agg	atg Leu	gat Asp	ttc Phe 175	ttc Phe	528
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30	atc Ile	aac Aen 210	ogc Arg	gtg Val	oot Pro	agc Ser	atg Met 215	agg Arg	atc	ctg Leu	gtc Val	act Thr 220	ccq Leu	otg Lea	Leu	gat Asp	672
30	acg Thr 225	ctg	eac Pro	atg Met	etc Seu	999 61y 230	aac Ann	gtc Val	ctt Leu	ceg Leu	ong Leu 235	tgo Cys	ttc Phe	tto	gto Val	tto Phe 240	720
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40.	asç Asn	ege	tqc Cys	ttc Phe 260	ctg	gaç Asp	agt Ser	gcc Ala	ttt Phe 265	gto Val	agg Arg	aac Asn	aec Asn	860 Ash 270	org Lev	acc	816
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55	tao Tyr	acç	Caq Gln	pag Pso	cag Gin 323	Ala	gag Glu	-Grà	gtg Val	930 930	got	gca Ala	aga	aac Asn	gco Ala 335	tgc Cys	1008
60	ave	aac Aso	trp	Asn 340	Glo	tad Tyr	Tyr	aac Asn	gtg Val 345	Cys	arg	teq	Gly	gac Asp 350	ecc Ser	aac Aso	1056
	ccc	cac Ats	Asc Asc	ggt Gly	gcc	atc Ile	aac	tto Phe	gae Asp	aac Asc	acc	Cys	Tyc	god	tgg	att 114	1104

75 355 360 god atd too day gtg acc acg con gas ggd tgg gtg gad atd atg cac 11652 Ala lie Phy Gin Val lie To: Leu Giu Giy Trp Val Asp ile Mer Tyr tab goo and gas goo can the the tab add the atc ben the atc Cha Tyr Val Har Asp Ala His Sex Poe Tyr Asn Phe Tle Tyr Poe Fle Leo 10 1248 stm are are gra ugo not tro tro are one one tro gray gray Less lie lie Val Gly Ser Pae Pae Met lie Asa Leu Cys Leu Val Val 405 430 15 1298 att gen acq cag tre rog gag acg sag cag egg gag agt cag ctg atg The Ale Thr Gin Phe Ser Glu Thr Lys Gin Arq Glu Ser Gin Lou Met cgg gag dag ogg goa ogd cac ctg too aad gad agd acg ctg god agd Arg Glo Clo Arg Ala Arg His Law Sar Aso Asp Ser The Law Ala Sar 1344 20 255 tto too gae not ego ago ten hap eas eas ots ote aas two dig eye Phe Ser Glu Pro Gly Sex Cys Tyr Glu Glu Leu Leu Lys Tyr Val Gly 23 cac are the ego eag give say egg ego ago tig ego eto tac gen ego 1440 His lie Phe Arg Lys Vel Lys Arg Arg Ser Leu Arg Leu Tyr Als Arg 465 570 30 1488 tgg cag ago cgc tgg cgc aag aag gtg gad cob agt got gtg caa ggc Top Oln Ser Arg Trp Arg Lys bys Val Asp Pro Ser Ala Val Gin Gly 35 mag ggt oed ggg dad ogd mag mgd ogg gda ggd dad aba gdd tog Glo Gly Pro Gly Ris Arg Glo Arg Arg Ala Gly Arg His Thr Ala Ser 1536 1584 gig sac cac cin gio tac bat cac cat cad cac cac cac cac cac cac tac Val Ris Wis Leu Val Tyr His Ris His His His His Ris Ris Ris Tyx cat tit ago eat ggc ago oco ego agg con ggc con gay oca ggc gon 1632 His Phe Ser Bis Gly Ser Pro Arg Arg Pro Gly Pro Glu Pro Gly Ala 49 533 tgo que acc agg ctg gte egs got tgo gog coc coc tog cos cot too Cys Asp Thr Arg Leu Val Arg Ala Gly Ala Pro Pro Ser Pro Pro Ser 1680 50 1.728 oca que ege qua con con que qua qua que ent gro can ago ato tas dat Pro Gly Arg Gly Pro Pro Asp Ala Glu Ser Val His Ser Ila Tyr Ris 570 ace due the ear ata dad dad eed end dad add dee edd dat ace Als Asp Cys His Ile Glu Gly Pro Gln Glu Arg Ala Arg Val Gly Thx 585 tgo cgc ago can tgo cgc tgo cag cct dag got ggt cao agg got gqg Cys Arg Ser His Cys Acg Cys Gin Fro Gin Ala Gly His Acg Ala Gly the cat gas the the cas gat out got the agg ggt ggg cap cap cap the Ris His Giu Leu Pro His Asp Pro Ala Lau Ary Giy Gly Gly Glo Arg Gir

		610					61.5					629					
3	Arg	cag Gln	cac His	cap Glo	and Via	agg Ary 630	acc Thr	caa Gan	21 y 33 g	gaa Glu	gtg Val 635	Grå dåd	Arg cag	tag	acc Thr	gas Ala 640	1926
***	Arg	cac His	yt3 c31	alà aaa	080 818 645	gga	acq Pro	ttp Lev	ago Sec	550 650	asc Asc	agc 64 <i>r</i>	51.0 C01	gac Asp	000 Pro 655	ta: Tyr	1963
10	gag	aag Lys	atc	ccg Pro 660	car Sis	gtg Val	gco Ala	999 Gly	089 31u 665	can Wis	gga Gly	arg Seu	gge Gly	000 Gln 670	gcc Ala	art Pro	2016
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25	Ala	ctq Leu	gag Glu	gac Asp	eeg	gag Glu 710	ggt Gly	gaç Giu	atc	agc Ser	ggc Gly 715	teg Ser	gsa Glu	agr Ser	gga Gly	qac Asp 720	2160
30	Sex	gat Asp	ggc Gly	cgt Arg	ggc Gly 725	gtc Vai	tat Tyr	gas Gie	tto Phe	acg Thr 730	cag Gls	gac Asp	gtc Val	Arg	cac Ais 735	ggt Gly	2208
J110	gac											acg					2256
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45	Less	ogc Arg	aga Axg	ato	gtg Val	gac Asp 790	agc Ser	aág Lys	tac Tyr	tto Phe	ago Ser 795	cgt Arg	GIY	ato	arq Met	atg Met 800	2400
50	Ala	are Ile	ctt Leu	gto Val	aac Aan 805	acg The	ctq Leu	ago Ser	atg Met	ggc Gly 810	gtg Val	gag Glu	tac Tyr	cat Ris	gag Glu 815	cag Glo	2448
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33		atg Met	ttr Phe 835	goo Ala	otq Leu	gag Glu	atq Met	arg Leu 340	ong	aag Lys	org Leu	otg Leu	goc Ala 845	tge Cys	G19	ect	2544
60	ctg Leu	ggc Gly 850	Tyr	atd	ogg Arg	aac Asn	ecg Pro 855	2.1.2	aac Aan	atc	tt: Phe	gac Asp 860	ggs Gly	arc	ato	gty Val	2593
	gra Val	ato	age Ser	gtc Val	tqq Trp	gaç	abc	gcq Val	814 888	caq Gln	gcg Ala	gao Asp	Gly	gge	Erg Less	tot	2645

	863					876					875					885	
ž	gtg Val	èt; Lea	oge Arg	acc 7hr	ttc Phe 885	egg Arg	ctg Sed	ct; Leu	ogt Arg	gtg Val 890	oby Leu	649 Lys	atij Leu	giq Val	ogd Arg 895	nn: Phe	2688
	obg beu	eca Pro	900 Ala	chg Leu 900	ogq Arg	eqe Arg	cag Glt	ctc Leu	grg Val 905	gtg Val	atg Lev	ang Val	aag Lys	Scc The 910	atņ Mēt	gac Asp	3736
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30	Tyr	tto Phe	grg Vel 995	ALA	oto Leu	atg	THE	ttd Phe 1000	gly ågc	aac Asn	tat Tyr	Val.	etc Leu 1905	ttc Phe	aac Asn	ctq Leu	3024
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<i>J</i> (<i>t</i>)	cto	Pro	tca 801	Ser	tgt Cys	gca Ala	Gin	ctq Len 1080	520	ege Arg	bro eca	Cys	ct.a Leu 1095	ece Pro	600 03.9	aga	3264
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		11729	1130	1135	
ż	Sex Ser Arg	ogo too ago tgg Arg Ser Ser Top 140	ago ago otq qqo om Ser Ser Lea Gly Arc 1145	c gre dag cot daa) Als Gir Bro Gio 1150	3456
10	gog com gog Ala Pro Ala 1155	Cys Gin Cys Gly	gee ogt geg too st: Glu Arg Glu Ser Le: 160	g bry tot ggt gag a Leu Sem Gly Glu llss	3504
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35	ago agg agg Ser Arg Arg 1265	cet ggg ecc tet Pro Gly Pro Ser 1270	acc one two one th The Leu Tyr Leu Ph 1275	r toc cea cag aac e Ser Pro Gin Asn 1280	3840
40	egg tre ege Arg Phe Arg	gts too tgs gag Val Ser Sys Gin 1285	aag gto ato soa cs bys Val Tle Thr Hi 1290	c and and nin gat a Lys Met Phe Asp 1295	3868
45	cac gtg gtc His Val Val	ctc gtc ttc atc Leu Val Phe Ile 1300	tro oto amo typ go Phe Leu Ash Cys Va 1305	c acc atc gcc ctg 1 Thr Ile Ala Leu 1310	3936
50	gag agg cot Glu Arg Pro 1315	Asp Ile Asp Pro	ggo ago aco gag cg Gly Ser Thr Glu Ar 320	g gto tto oto ago g Vai Phe Leu Ser 1325	3984
VV	gtc roc est Val Ser Asn 1330	tac atc ttc acg Tyr lle Phe Thr 1339	gcc atc tto grg gc Ala lle Phe Val Al 134	a Glu Met Net Val	4032
55	aag grg grg Lys Val Val 1345	gcc ctg ggg ctg Ala Leu Gly Leu 1350	etg too ggs gag ca Leu Sar Gly Glu Hi 1355	n gen tan otg dag s Ala Tyr Leu Glo 1360	4080
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	gad att gto Asp lie Val	gtq qcc atq qcc Val Ala Met Ala	top got ggt ggc gc Ses Ale Siy Giy Al	c and atc ctg ggt a Lys lie Leu Gly	4176

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												200			
		138					385					390			
5	Val Leu	ege gr Arg 9; (395	ned in	cat Axq	1:53	org Lau 400	ogg Arg	acc Thr	otg Leu	Arg	001 Pro 405	otą Leu	agg Arg	gto Val	4224
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U	tgg grg Trp Val 1505	aac a Asn 1	to atg le Met	tac Tyr 1510	gac Asp	gaa Gly	arg Leu	gat Asp	gdo Ala 515	gtg Val	gly åå:	gto Val	gad Asp	cag 614 1520	4560
3	cag cct Gin Pro	gtg c Val G	ag aac lo Aso 1525	cac Ris	asc Asn	occ Fra	Tro	atg Met 1530	ctq Led	ong Leu	tac Tyr	PNE	arc Tle 1535	bee Ser	4608
0	tto org Phe Leu	oto a Leu 1 15	to gtc 1e Val 40	agc 9er	ttc Phe	ttc Phe	gtg Val 1545	ctc Leu	aac Asn	arq Yek	ttc Phe	gtg Val 1550	GTA 884	gtc Val	465
5	gtg gtc Val Val	gag a Glo A 1555	ac oto so Phe	cac His	Lys	tgc Cys L560	cgg Atg	510 CCd	cac His	GIA	gag Glu 1565	gcg Ala	gag Glu	gag Glu	170
n	gog ogg Ala Arg 1570	Arg A	ga gag æg Giu	634	aag Lys 575	Arg	asg Leu	ogg Arg	Arg	cta Leo 1580	gag Glu	agg Arg	agg Arg	ogc Arg	475
O	agg agg Arg Ser 1585	act t Thr F	he Pro	agc 9er 1590	Pro	gaq Qlu	gcc Ala	Gla	ogc Arg 1595	yr.d cāā	ccc	tac	Tyx	gcc Ala 1600	480
3	gac tac Axp Tyr	tog o Ser å	cc acq Pro Thr 1605	Arg	Arg	trp	Tie	cac Nis 1610	teg	otg Leu	t gc Cys	acc	agc Ser 1615	812.5	484
10	tar ord	Asp i	rto tto Leu Phe 520	ata	acc Thr	87.6	atc Tie 1625	atc lie	Cha ada	gto Val	Ass	gtc Val 1630	ile	acc Thr	489
	atg to: Met Se:	atg o	gag cac	tat	áac Asn	cas	nnd Pro	aag Lyz	tog Ser	ctg	gac Asp	gag Glo	gcc	ces Les	194

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		633				3	530					645				
5	aag cac Lys Tyr 1650	ege Cys	aac Asn	tac Tyr	Vai	ttt Phe 688	The	ata	yaq Val	29.0	gic Val 660	ttt Phe	Glo	gat Ala	goa Ala	4992
10	ctg aag Leu Lys 1663	ong Seu	gta Val	Als	ttt Phe 1670	999 917	eco Phe	97.3 23.2	Azg	nte Pbe 675	sec Phe	689 L/s	gas Asp	Axg	tqç Trp 680	5040
	aac cag Asn Gln	org Les	gac Asp L	ctg Leu 685	goc Ala	226	gog Val	otg Lea	ctq Leo 1690	toa Sez	eta Leu	stq Met	ggc Giy	atc Ile 1695	ins	5088
15	ctg gag Leu Giu	910	ata Tle 700	gaq Glu	atg Mat	ayc Ser	Ala	gcg Ala 705	Tres 23	occ Pro	atr Ile	Asa	000 Pro 1710	ecc Thr	acc	5136
20	ato oge lle Arg	atc Ile 1715	atg Met	ege Arg	gtg Val	Les	ege Arg 1720	att	gcc Ala	cgt Arg	3.8.0	ctq Leu L725	aaç Lys	org Leu	ang Leu	5184
25	aag arg Lya Net 1730	got Ala	acg The	ggc Gly	Het	dge Arg 1735	goc Ala	org Leu	ctg Leu	Asp	act Thr 1740	Val	grg Val	CAR Gln	got Ala	5232
***	ctc ccc Leu Pro 1745	can Glo	grg Val	Gly	asc Asn 1750	ctq Leu	giy ggc	ctt Leu	Linu	tto Phe 755	atg Met	oto Leu	ctg Leu	Phe	ttt Phe 1760	5280
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40	tic ggc Phe Gly	atq Met 1795	Ala goo	tto Phe	ata Leu	The	ctq Leu 1800	ttc Phe	aga	gtg Val	Ser	acg Thr 1805	ggg Gly	qac Asp	ääc Asn	5474
45	tgg asc Trp Ass 1810	Gly	atc 11e	atg Met	Lys	gac Aap 1815	acg The	Deu Leu	ege Atg	Giu	tgo Cys 1820	toc Sez	agt Azg	Glu	qac Asp	9472
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64	gog gag Ala Glu	ctq Leu 1875	gac Asp	gec	gag Glu	îla	1980 Glu gaq	ctq	gag Glu	atg Met	Ala	Caq Gla 1985	giy	ecc Pro	999 61y	5664
	agt gca Ser Ala	ogc Arg	egg Arg	gtg Val	gae Asp	gog	gac. Asp	açç Arç	ect Pro	ccc	red	000	uag Sin	gag Glu	agc Sér	5712

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	1.890				3	895				3	900					
j	ong ggo Pro Gly 1908	got Als	agg Azg	gac Asp 3	922 818 910	Pro	aác Asn	otq Leu	gt: Val	904 Ala 1915	oge Arg	aag Lys	gt.g Val	tcc Ser	gtg Val 920	5760
10	tec agg Ser Arg	aty Met	1.033	teg Ser 925	Leu	est Pro	aac Asn	Asp	agc S#2 1930	tac Tyr	arq Met	ito Pha	Arg	000 Pro 935	gtg Val	5808
1.0/	gtę cet Val Pro	\$2a					210					Gla				5856
13	gag acc Glu Thr	tat Tyr 1955	ggg Gly	gcc Ala	gge	The	000 Pro 1960	ttg Leu	ggc ggc	tee Ser	Val	goc 814 985	Sec 5ec	grg Val	cac Wis	5904
20	tor cog Ser Pro 1970	ecc	gos Als	gag Glu	Ser	tgs Cys 1975	gcc Ale	tee Ser	ctc	Gin	atc Ilm 980	cca Pro	org Leu	gct Als	gco Val	5952
25	tog toc Ser Ser 1985	eca ero	gee Ala	Arg	agc Sex 1990	gly	qag Giu	000 P20	Leu	Cac His 1995	gcc Ala	ceq	taa Ser	Sro	Arg Cgg	6000
30	ggc aca Gly Thr	gcc Ale	Arg	tec Ser 2005	eec Pro	agt Sec	ct.c Leu	Sar	cgg cgg	erg Lea	oro Leu	tçc Cys	Acq	cag Gin	gag Giu	6048
30	göt gtg Alæ Vel	Has	acc Thr 2020	gat Asp	tee	ttg Leu	Lys	gga Gly 2025	aga Arg	ttg Leu	aca Thr	Ala	ota Leo 2030	gy A daa	aca Thr	6096
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45	<222> ((611	9.3												
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55	arg Arg	ecc Pro	tgq Trp 20	ecc Pro	tqs Cys	ggn	ger Val	ggt Gly 23	ggg	ggc 61y	gtc Vel	ece Pro	30 GLY	gju gaq	eac Pro	96
60	ogg gg: Arg Gly	gec Ala 35	Gly	acg Thr	nga Ax <i>q</i>	Sly	99a 91y 40	ggg 6ly	ggg	tto	gag Glu	Ctc Leu 45	GŢĀ	gtg Val	tca Ser	144
	ccc tec Pro Sex St	Glu	890 880	626 626	gcg Ala	gcc Ala 55	gaç Glu	age	tgo Cys	gog Ala	989 614 60	Leu	ggt Gly	gcc Ala	gac Asp	193

										82							
3	gaş Glu 65	Glo	Sin	ogc Arg	gtt Val	cug Pro 70	tac Tyr	820 023	gos Ala	Pen sp3	gow Ala 73	goo Aia	arg Thr	gtc Yal	tro Phe	ptc Phe 80	240
3	tga Cys	cec Lma	dgs Gly	cag Gin	acc Thr 95	ecg Thr	Arg cgg	540 cad	ege Arg	aqc Sar 90	tqq Trp	tga	GIO Ueu	cgg Arg	009 Leu 98	gtc Vai	288
10	t go Cys	aac Asn	eca Pro	tgg Trp 100	ttc Phe	gag Glu	cac	gtg Val	agc Ser 105	arg Ber	acq Lea	qta Val	and	atq Met 110	ctc Leu	aac Asn	336
15	rgc Cys	gtg Val	acc Thr 115	Ced	Gly	Bet	tho Phe	ogg Arg 120	ged	tgr Gys	gaş Glu	gac Asp	918 Val 125	gag Glu	tqc Cys	ggc Gly	384
20	too Ser	gag Glu 130	Arg cgc	tys	aan Aso	atc Ile	ctg Leu 135	gag Glu	goc Ala	ttt Pha	gac Asp	gcc Ala 140	tto Phe	att	ttc Phe	gcc Ala	432
25	ttt Pho 145	to: Phe	gog	gtg Val	gag Glu	atg Met 150	gtc Val	atc Ile	aaq Lys	atg Met	gtg Val 155	gcc Ala	ttq Leu	Gly	ctg Leu	ttu Phm 160	480
~~	999 61y	Cag	ang Lys	tqt Cys	tec Tyr 165	ctg Leu	ggt Gly	gac Asp	acg Thr	tqq Trp 170	&5C A56	agg Azg	ong Leu	gar Asp	tra 8he 175	tto Phe	328
30-	atc Ile	gtc Val	gtg Val	gog Ala 180	gly ggc	atg Met	atq Met	gag Glu	tac Tyr 185	tog Ser	ttg	gac Asp	gga	Cac His 190	aac Asn	gtg Val	376
35	agd Ser	Leu	tog Ser 198	got	atc	agg Ang	acc Thr	gtg Val 200	cgg	grq Val	Leu	egg Arg	000 900 205	ctc Lea	age Arg	goc Ala	624
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45	thr 225	Les	000 Pro	atg Met	ctc	530 614 888	Asn	gts Val	CET Leu	ctg	Ctg Leu 235	tgc Cys	ttc	Pbe Pbe	gec Val	tto Phe 240	720
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60	atc 11e	tgo Cys 290	Ser	Ser	ago	Arg	9ac Asp 293	Ass	ggc Gly	atg	cag	300 200	CAR	tog	Ris	ato lie	91.2
	sec Pro 305	GLY	dae Arg	age Arg	gao Asp	919 Val 310	Arg	atg Met	Pro	Cys	Thr 318	ಒಟಚ	Gly	rgg	Glu	qcc Ala 320	980

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3	tac Tyr	acg The	cag Gin	ead Ero	Cag Gin 325	gec Alla	gag Glu	ggg Gly	761 319	gg: Gly 330	got Ala	gca Ala	Arg ogo	aac Asn	gco Ala 335	tgc Cys	1008
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15	gcc Ala	atc 119 370	ttc Phe	caq Glo	grg Val	arc Tie	acg Thr 375	cng	gaa Glu	gly Gly	tqq Trp	grg Val 380	qac Asp	atc lle	atq Met	tac Tyr	1152
20	tec Tyr 385	gtc Val	et.g Net	gac Asp	gno Ala	nac His 390	tea Ser	ttc Phe	tac Tyr	aac Asn	tto Phe 395	acc Ile	tat	ttc Phe	arc	otg Leu 400	1200
25			atc Tie														1248
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30	cgg Arģ	gag Glu	cag Gin 435	yrd cdd	gca Ala	ego Arg	cac Sis	ctg Leu 440	ser	aac Asn	gac Asp	agc Ser	acq Thr 445	esg	gcs Ala	agc agc	1344
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j	gcc Ala	gat Asp	tigs Oye	080 819 580	ala	gag Glu	999 G1y	65¢	Cag Gin 585	gag Glu	agg Arg	gss Ala	299 809	959 Val 590	G1A Gdc	aca Thr	1776
<i>*</i>	oge Cys	ogo Arg	ago Ser 595	cat His	tgc Cys	ogc Arg	ega Cys	caq Gln 600	220 220	oag Gln	get Ala	ggc	681 865	agg Arg	gct Ala	erà ada	1824
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	Pro	gaq Glu	gag Giu	ctg Lev 820	Thr	aat Asn	got Ala	CE3	gag Glu 825	atc	sgc Sec	aac Asn	avc	909 Val 830	etc Phe	ann Thr	2496

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20				ctg Leu 900													2736
25				and The													2784
••	agc	atc 11e 930	nng Leu	ggc Gly	atg Met	cac Bia	ctt Leo 935	Eta She	gge Gly	ege Cys	aag Lys	ttc Phe 940	agc Ser	atq Leu	aaq Lys	aca Thr	2832
30	gac Asp 945	acc	gga Gly	gac Asp	acc The	gtg Val 950	ect Pro	gac Asp	agg Arg	aaq Lys	aac Ass 955	ttc	gac Asp	too Ser	ctg Leu	ctg Leu 960	2880
35	tgg Trp	gee Ala	atc	gtc Val	acc Thr 965	grg Val	the Phe	cag Gln	stc 11e	ctg Leu 970	add	caq Gla	gag Glu	gac Asp	199 Trp 975	aac Aso	2928
40	gtg Val	gto Val	ctg Leu	tac Tyr 980	aac Asn	g) y ggc	atq Neb	gon	500 Ser 985	acc	toc	toc Ser	tgg	Ala 990	gcc Ala	ctc jau	2976
45	rac Tyt	ttc Phe	grg Val 995	gcc Ala	ctc Leu	atq Met	The	tta Phe 1000	Gly	aac Ass	tat	Val	otc Leu 1005	ttc Phe	aac Asn	ctq	3024
, .	Less	grg Val 1010	Ala	ato	cto	Val	gag Glu 1015	ggc	ttc Phe	cag Glo	Ala	9a9 Glu 1020	ggc	gat Asp	gcc Ala	aac Asn	3072
50		Ser		acg	Asp					Ser					Gip		3120
55	ttc Phe	cac Ris	aaq Lys	Leu	aga Arg 1045	gaa Glu	cts Leu	cag Glm	Thr	aca Thr 1050	gag Glu	ctg Leu	aag	Mari	tgt Cys 1055	toc Ser	3168
60	ctg	gcc Ala	Val	acc Thr 1060	540	Asn	gặc Giy	3.42	tgg Trp 1065	ayç Arç	gac Asp	geg Glu	ALa	ger Ala 1076	Cys	occ	3216
	ieu	Pro	tca Ser 1075	Ser	cys	gca Ala	Gin	ctq Leu 1080	cca Pro	ogc Aźą	ens Pro	Cys	ona Leu 1095	5.00	oca Pro	age	3264

ŝ	get dec det top typ any may one has you tok day art die gge yty Ala His His ser try Mat Gin Pro Pro Ala His Gin The Leu Giy Val 1090 $$1100$	3312
,	gen gen gen get erg ggs aer oge ene tyg gag aer oge age ett egg Ria Ala Ala Ala Pro Giy The Arg Sis Tep Giu The Arg See Lend Arg 1115	3360
10	ceg set one algorith too out tgs see out gag ecc agt age get tag fin Pro Pro bys Phe Ser Leu Cys Pro Leu Gly Pro Ser Gly Ale Trp 1125	3498
1.5	age age ogs ege tee age tig age age big goe ogt goe og oet saa Det Ser Arg Arg Ser Ser Trp Ber Set Leu Gly Arg Ala GlA Pro Glo 1140	3456
20	qog cog gng top oag tot ogg gaar ogt gag too otg otg tot ggc gag Ala Pto Ala Cys Gln Cys Gly Glu Arg Glu Ser Leu Leuser Gly Glu 1165	3594
25	gan aag ggc ayc ang gan gan gan gg gan ggc agg gg gg cgc too Gly bys Gly Ser The Aap Aap Glu Ain Glu Aap Gly Arg Ala Arg Sar 1170 $$1125$	3592
	ggg one ogt gee acc ees ett ang ogg gee gag tee ett gam bee ogg Gly Pro Arg Ala Thr Pro Leu Arg Arg Ala Glu Ser Leu Asp Pro Arg 1189 1190 1190 1195 1195 1195 1195 1195 119	3500
30	coc ctg sag cag cot coc occ see cas gtg cac gat occ sac gag Pro Leu Arg Arg Pro Pro Pro Ala Tyr Gin Val Arg Asp Arg Asp Gly 1205 1210	3648
35	cad gtg gtg ger etg den age gae the the etg ege are gae age cac Glm Val Val Ala Lem Pro Ser Amp Phm Phm Lem Arg Ilm Amp Ser His 1220 1225	3696
40	cgt gag gat ges gec gag ett gan gan gan teg gag gan age tge tge Arg Glu Asp Aia Ala Glu Leu Aap Aep Asp Ser Glu Asp Sex Gys Cys 1240 1245	3744
45	one oge etg cat asa gig etg gig ecc tae asg oce cag egg tgc egg Leu Arg Leu Hie Lye Val Leu Val Pro Tyr Lye Pro Gin Arg Cya Arg 1250 $$ 1260	3792
	agn agg agg cot ggg con the acc etc tag con the two cos cag acc Set Arg Arg Pro Gly Pro Ser Thr Leu Tyr Leu Phe Ser Pro Glo Asn 1260	3840
50	cog the ege gat tee tye wag aag gto ate aca cae aag atg the gat Arg Phe Arg Vai Sar Cys Gln Lye Vai Iie Thr Ris Lys Mat Pho Asp 1295 1290 1295	3688
35	cas gtg gtc etc grc ttc atc ttc etc aac tgc gtc acc atc gc erg Hix Val Val Leu Val. Phe Tie Phe Leu Ann Cyx Val Thr Tie Als Leu 1300 $$	3936
60	gag acq ont gas att gat one gag acq acq ogg gto the est age Glu Arg Bro Aep lie Asp Pro 649 Ser The Glu Arg Wal 1945 Beb Ser 1926	3983
	geo bec aat tan aso tto ang geo att tto geg geg geg atg atg geg Val Ser Aso Tyr Ile Phe Thr Ala Ile Phe Val Ala Giu Met Nec Val 1336 1340	4032

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5	adg stg gap inn cag gap one cag two gap gap day gap nao one cag bys val Val Ala Leu Giy Leu Leo Ser Gly Giu Nia Ala Tyr Leu Gin 1345 $$ 1350 $$ 1350 $$	4080
	ago ago tag and eng eta gat quy ong eta gag eta gag eta co ena eta Ser Ser Tap Ang Leu Leu Ang Gly Leu Leu val imu val Ser Leu Val 1366 1373	4128
10	gae alt gud gup and ang ged tog get ggt ggt ged and ate ong 60%. Amp lie Val Val Ala Mer Ala Ber Ala fily fily Ala Lys lie Leu Giy 1380 - 1380 - 1380	4176
13	gtt ong oge gtg etg ogs org ong ogg ace etg ogg get ong agg gtd. Val beu Arg Val Leu Arg the Leu Arg Thr Leu Arg Pro Leu Arg Val 1995	4224
20	atc age cgg gec ccg ggs ctc aag ctg gtg gtg gag aeg ctg ata tea Ile Ser Acg Ala Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser 1420 1425	4272
25	to acte agg con str ggg sac att gto the ass rigs tge goo the trest len arg fro lie Giy Asn The Val Leu Tie Cye Cys Ala Phe Phe 1425 $$ 1430 $$ 1430 $$ 1430 $$ 1430 $$	4320
	are set tit gap are tog gap gro eag etc the asa gap amp tre rac lie lie Phe Gly lie Leu Gly Val Gin Leu Phe Lya Gly Lya Phe Tyr 1465 $$1450\ $	4358
30	tad the dag ago doc gad act agg sad atd too act mag don see igd Tyx Cys Giu Gly Pro Asp Thr Arg Asm lie Ser Thr Lys Ala Gin Tys 1460	4416
35	ogg gcc gcc cac tac egc tgg gtg cgm mgm aag tac aan ttc gac aac ang Ala Ala Bis Tyr Atg Try Val Arg Lys Tyr Asn Rhe Asp Asn 1475 $$ 1475 $$	4464
40	org age day goo erg abg tog ong tro grg org tom tom hag gat qga Leu Gly Gln Ala leu Net Ser Leu Phe Val Leu Ser Ser lys Asp Gly 1495 $$	4512
45	kgg gbg amo ato ang tao gas gag ang gat goo gtg ggt gro gac mag frp Vel Aen fle Met Tyr Asp Gly Leu Asp Ala Val Gly Val Asp Gln 1810 -	4560
	pag cet gig cag aan cac aan eee een atg atg stg tas tee are tee Gis Pro Val Gin aan Hie Aan Pro Tro Met Lau Lau Tyx Phe Ila Ser 1525 1530	4608
50	the eng ote atc gcc age the two gdg ctc asc stq ttc gtg ggc RKc Phe Leu Leu Lie Val Ser Phe Phe Vol Leu Asn Met Phe Val Gly Val 1540 $$ 1540 $$	4656
55	gtg gtt gag and tit car hag tgt bgg ceg car cag gag gag yal Val Val Glu Ann Phe H.s Lya Cya Arg Pro Hiz Glu Glu Aia Glu Glu 1565 1560	4704
60	go; cgg cgg cga gag gag aby cgg big cgg cgc cis pag agg bgu bgc Ala Arg Arg Biu Glu Lyw Arg Leu Arg Arg Leu Glu Arg Arg Arg 1970	4752
	agg agg ger mag ege ngg mor tar tar gen gar tar tag enn ang oge Atg Lya Ala Glm Arg Arg Pro Tyr Tyr Ala Aar Tyr Ser Fro Th Arg 1585	4800

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	Arg Trp 1	MT dad tog of The Hid Sar D 1605	ig tgc acc : su Cys Thr :	igo cac tat of Her His Tyr Le 1610	o ged old the u Aep Leu Phe 1818	atc 4888 Ile
Š		ito ato tot qu lle lle Cys Vi 1620	al Asn Val :	sto acc atg to The The Met Se 525	c ang gan cac r Mat Gio Ais 1630	tat 4896 Tyr
10	Asc Gla 8	ice and top of Pro Lys Ser Le 635	ng gan gag Bu Asp Glu 1640	gen etc aag to Ala Leu bys Ty	e tgc aac tac r Cys Aan Tyr 1645	gtc 4944 Val
15	Phe The 1 1650	isc gig tin g lie Vai Phe Vi	cs tto gad : al Pha Slu : 1655	jet gek etg as Ala Ala Ceu Ly 160	g ctg gta gca s le: Val Ala 0	ttt 4992 Phe
20	ggg ttc / Oly Phe / 1665	igk egg tte t Arg Arg Phe Pi 16	he Lys Asp	agg tgg mac ca Arg Trp Asc Gi 1675	g cig gác cig n Leu Asp Leu	gac 5040 Ale 1680
22	atc gtg o	rtg otg tos o Leu Leu Ser L 1605	to atg ggo eu Met Gly	and add ctg ga Lie Thr Lau Gl 1690	g gag ata gag n Glu Tle Glu 1695	atg 5088 Net
23	ago goo (Ser Ala /	geg etg ecc a Ale Leu Pro I 1700	le Asn Pro	acc atc atc co Thi Tie Tie Ai 795	go atm atm omc ng The Met Arm 1710	gtg 5136 Val
30	Leu Arg	ett qoo ogt g Ne Ala Arg V 715	tg otg aag al Leu Lys 1720	ong ong sag at Leu Leu Lys Me	iq got eog ggs et Ala The Gly 1725	atq 5184 Mer
3.5	age gae : Arg Ala : 1730	Leu Leu Asp T	ct gtg gtg hr Val Val 1735	mas gen obo ox Gln Als Leu Ps 174	oc cag gtg ggg ro Gin Vai Giy 10	aac 5232 Asn
46	Leu Gly	ctt car bac a Leu Leu Phe M 17	et Lou Lau	ttt ttt ato ra Phe Phe Ile T 1755	er gor gog etg yr Aie Aie Leu	qqa 5280 Gly 1760
	Val Glu	ctg ttc ggo a Ceu Phe Gly A 1765	gg ctg gag rg Leu Glu	rge agt gea g Cys Ser Glu A 1770	ac aao coo tgo ap Aan Pro Cys 1775	Glu
43	ggc ctg	agc agg cad g Ser Asg Kis A 1780	ia Thr Pha	ago aac tro go Ser Ase Phe G 785	o atg god tto Ly Met Ala Phe 1790	ctc 5376 Leu
50	Thr Leu	tto oga gtg t Phe Arg Val 8 795	cc acg ggg er Thr Cly 1800	gac aan tog a: Asp Asn Trp A:	sc ggg atc atg sn Gly Tle Met 1805	asq 5424 Lys
55	gac acg Asp Thr 1810	ctg cgc gag t Leu Arg Glu C	ge tee egr ys Ser Arg 1815	gaq gac mag ci Glu Asp Lys H 18:	ac tgo otg ago is Cya Leo Ser 20	Tyr
δ(Leu Pro	Ala Pro Ser E	es gts tas ro Val Tyr 36	rtn grg soo t Phe Val Thr 8 1835	to gtg otg gtg he Vai Leu Val	Pro 1840
	cag tto Gln Phe	gtg ctg gtg 8 Val Leu Yai 8 1845	ac gig gig isn Val Val	gtg gcc gtg c Val Ala Val L 1850	to and ead cac eu Met Lys His 1855	Leu

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3	gag gag ag: 880 wag Gla Glo Ser Aso Lys 1860	gag got Gly Ala	299 969 Arg Glu 1963	gat gog Asc Ala	gag cip ga Ciu Luu As 187	p Ala Giu	3616
·	ato gag otg gag atg lie Glu Leu Glu Mer 1875	Ala Glo	gga tos Gly Pro 1885	Gl/ 3er	goá ogó og Ala Arg Ar 1885	g gtg gac g val Asp	5664
10	gog gac agg cct ctc Ala Asp Arg Pro Pro 1890	ttg ccc Lai Pro 1895	cag gag Gin Glu	Sas Pro	ggc gcc ag Gly Ala Ar 1900	g gac gcc g Asp Ais	\$71.2
15	cca aac ctg gtt gca Pro Asn Leu Val Ala 1905	cgc aag Arg Lys 910	gtg tcc Val 3er	gtg tcc Val Ser 1915	agg etg ct Arg Met Le	c tog ong u Sen Leu 1920	5760
20	ces aan gac age tac Pro Aso Asp Ser Tyr 1925	stg bto Met Phe	Arg Pro	gtg gtg Val Val 1930	cot yes to Pro Ala Se	g gon one c Ala Pro 1935	5808
25	His Pro Arg Pro Leu 1940	cag gag Glo Glo	gtg gaç Val Glu 1945	atg gag Met Glu	acc tar qq Thr Tyr Gl 195	y Ala Gly	\$856
2.5	acc ccc tty ggs tes The Pro Lew Gly Ser 1955	Val Ala	tot gty Ser Val 1960	cad to: Ris Ser	ocq ctt qc Pro Pro Al 1965	e gag toc a Glu Ser	3904
30	tgt got too oto cag Cys Ala Ser Leu Gis 1970	ato coa Ile Pro 1975	Leu Ala	Val Ser	tos sea go Ser Pro Al 1980	e agg age a Arg Ser	\$953
35	qge gag cec etc cas Giy Glu Pro Leu His 1986	gaa atg Ala Leu 1990	tac cet Sar Pro	ogg ggc Arg Gly 1998	aca goo og The Ala Ar	2000 d gat bro c foc ccc	6000
40	agt sic age dgg sig Sar Leu Ser Arg Lau 2005	cto tgo Lau Cys	Arg Gln	gag get Clu Ala 2010	grg cac ac Val His Th	c gat tec ir Asp Ser 2015	6048
45	ttg eag gga aga tig Leu Lys Gly Arg Leu 2020	aca goo The Ala	ota ggg Leu Gly 2025	The Pro	tgg atc st Trp ile La 203	u Gin Ser	6096
4./	oty gto age age ord Leu Val Arg Lys Pro 2035	Ard odd					5114
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33	<213> Home mapiens <220> <221> CDS						
	<222> (1)(5469)						
60	<pre><400> 11 atg gct gag age goo met Ala Glu See Ala 1 5</pre>	ton day Ser Pro	ecc tcc Pro Sex	tos tot Ser Ser 10	goa goa go Ala Ala Al	ce sea que la Pro Ala 13	€8

	gec Ala	gaç Glu	era Pro	994 61y 20	gtc Val	acc Thr	acg Thr	gaş Gla	25 25	920	gga Gly	201 200	Ar3 Edd	sg: 38: 30	ecc Pro	008 PEQ	96
3	Ser	tes Ser	eog Pro 35	004 PE0	ggc Gly	ong Seu	gag Glu	989 616 40	art Pro	cty Leu	gat Asp	gga 91y	gec Ala 45	gat Aap	oct. Pro	dat 813	144
10	gac Val	eca Pro 30	sac His	003 F20	gas Asp	org Leu	gag Alé SS	620 001	alt	gcc Ala	ttc Phe	tico Pna 60	tgc Cys	ot 9 Les	Arg	CAG Glo	192
15	acc The 65	acc Thr	agc Ser	occ Pao	agg Arg	880 70	tgg Trp	tọc Cya	atc lle	aag Lys	atg Net 75	gtg Val	cys cys	asc Asn	ecg	tgg Trp 80	240
20	rrr 8he	gaa Glu	tgt Cys	gtc Val	agc Ser 85	atg Mot	etg Len	gtg Val	ata Ile	ctg Leu 90	ctg Leu	eec Asn	cys	gtg Val	aca Thr 95	ctt Leu	288
20	gy A áac	arq Met	tac	cag Gln 100	eeg Pro	tgc Cys	gec Asp	gac Asp	atg Set 195	gac Asp	tgo Cys	ctq Leu	too \$er	gac Asp 110	oqc Arg	tgc Cys	336
23	aag Lys	atc Ile	atq Net 115	caq Gln	gra Val	ret	gat Asp	gac Asp 120	tte Phe	atc [le	to: Phe	ato Ila	tto Phe 125	ttt Pne	gcs Ala	arg Net	384
30	gaş Glu	stq Met 130	gtg Val	ctc Leu	aag Lys	atg Het	gtg Val 135	gaa Ala	atg Set	ggg 61 y	att	ttt Pbe 140	gqc Gly	eag Lys	aag Lys	tgc Cys	432
35	tac Tys 145	ct.c Lea	999 Gly	gac Asp	aca	tgg Trp 150	aac Asn	ege Arg	ctq Leu	gat Asp	ttc Phe 155	rts Phe	ats	gro Val	atq Met	qca Ala 160	480
40	ggg Gly	atg Met	gtc Val	gaq Glu	tac Tyr 165	Ser	gtg	gac Asp	ctt Leu	cag Gin 170	aac Asn	atc Ile	aac Asn	ctg	tca Ser 175	gcc Ala	528
41/	atc	ege	acc	gtg Val 180	age Arg	gtc Val	étg Leu	agg	000 200 185	Leu	asa Lys	god Ala	acc	880 885 190	ogc Arg	gtq Val	576
43	000 Fra	agt Ser	atq Met 195	Azg	atc Ile	teu	gtg Val	aac Asn 200	ctg læu	ctc	ctg	gac Asp	aca Thr 205	Leu	Pro	atq Mer	624
50	ctg	ggg Gly 210	Asn	gtc Val	ctg	ctg	oto Leu 215	Cys	tto	ttt Phe	qtc Vai	ttc Phe 220	tto	atc	ttt Phe	gge Gly	672
55	ato Nie 225	Tle	ggt Gly	gtç Val	cag Gin	ctc Leu 230	Tro	grig Ala	ggc Gly	ctg	ctg Leu 235	ogt	aac Aac	ogo Arg	tge Cys	ttc Phe 240	720
40	reir	gag Glu	gag Glu	aac Asn	Phe 245	Thr	ata 11e	Cas Gln	999 Gly	gat Asp 250	Val	gaa	teu	000 Pro	oda Pro 253	Tye	763
60	rac Tyr	Cag Gin	ecq Pro	gag Glu 260	Glu	gat Asp	gat	gaş Glu	atg Mar 265	Pro	bcc She	ato	tgc	top Ser 270	Les u	neg Ser	818

91 ago gan wel yoy ata ang ggo ngh pan gag ato coo mig ini aang gag Tiy Aap Aan Giy lie Met Giy Cys Wis Gid lie Pro Pro Led Lys Gid way ggd ogt gag tgo tgo otg tem akij gad gad gto tal gad til ggj Tin Giy Acq Glu Cys Cys Leu Sex Lys Asp Asp Val Tyr Asp Fne Gly 963 gog ggg ngn nag gan oto aat god agn ggn ord igi gid aad igg Bad Ala Gly Arg Gln Asp Leo Asa Ala Ser Gly Lau Cys Val Asa Tro Asa ogt tac tam mat gtg igo ogo ang ggn mgn gon man one cac mag ggt Ang Tyx Tyx Ann Val Cym Ang Thr Bly Sem Ala Am Pro His Lyx Gly 1008 15 1056 gon atc asc ttr gad asc sto ggt tat got tog atc gto atc tto dag Ala lie Asn Phe Asp Aso lie Giy Tyr Ala Ytp lie Val lie Phe Gin 385 20 gig are act etg gas gge tgg gtg gag are atg tac tac gtg atg gat Val fie Thr leu Gin Gly Trp Vai Gin Ile Met Tyr Tyr Val Met Asp 1104 25 got can see the two eac the are two the are ong err are are gry Ala Bio Ser Phe Tyr Ash Phe Ile Tyr Phe Ile Leu Leu Ile Ile Vol ggo bod the the stg atc age ong tog min git gre ata gog acc cag 30 Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val Val Ile Ala Thr Gln 390 1248 Phe Ser Glu Thr bys Gln Arg Glu His Arg Leu Met Leu Glu Gln Arg 33 1296 cag cyn ran ntg ton ton age ang gtg gdn age tan gen gag ent ggn Gin Arg Tyr Leu Ser Ser Ser Thr Val Ala Ser Tyr Ala Glu Pro Gly 420 40 gác tạc tác gay gay áto tro cáy tát gực tạc các átc chy bạc khi 1344 Asp Cys Tyr Glo Glo Ile Phe Gin Tyr Val Cys His Ile Leu Arg Lys 45 goo and ogo ogo goo ctg ggs and the ear goo ctg sag ago egg ege 1392 Als Lys Arg Arg Ale ben Sly Leu Tyr Gin Ale Leu Gin Ser Arg Arg 1440 cad doc ord ade ood dad doc ood doc ood doc ass oot add ood osc Gin Ala Leu Gig Pro Glu Ala Pro Ala Pro Ala Lys Pro Gly Pro Ris 1488 gir one age is a esp gar agr era par car car car car car car car Ala Lya Glu Pro Arg His Tyr Gln Leu Cys Pro Gln His Ser Pro Leu 55 1536 gat gog acq con can ann ong gtg ca; one and not god acq ong get Asp Ala The Pro Sis The Leu Val Gin Pro lie Pro Ala The Leu Ala

Too get oed ago tigo oot tigo tigo cag mat gan gan gan gan agg ang 1584. Ser Asp Pro Ala Ser Cys Pro Cys Cys Gin Bis Glin Asp Gliv Ang Ang 515 520 525

	one Pro	sog Ser 530	99: 017	ntq Leu	ggo Gly	ago Ser	acc for 535	gas Asr	Ton Sec	gly gg:	Cag Gin	949 610 540	999 917	542 542	gly	262	1692
5	293 517 513	agc 5er	193 393	got Ala	ggs 51y	990 31y 580	989 Glu	gan Asy	gag Siw	qoq Ala	gae Asp 555	ggg Gly	gat Asp	01A 080	gad Ala	egg Arg \$60	1680
10	890 Ser	agc Ser	gag Gin	gad Asp	998 619 565	qcc Ala	tee Ser	208 565	gaa Giu	ceg Leu 570	999 Gly	889 Lys	gag Glu	Oju gag	gag 610 575	G13	1729
15	gag Glu	989 619	cag Çîn	gog Ala 580	gat Asp	ggg Gly	gog Ala	gto Val	199 189 585	ong Leu	CAs	999 G19	gat Asp	gtg Val 590	tgg Trp	yrd	1776
20	gag Giq	acg Tar	aga Arg S95	gcc Ala	Lys	ct.g Leu	Yt3 cdc	600 617 625	atc Sic	grg Val	gae Asp	ago Ser	&89 Lys 605	tac Tyr	tto Pha	eac Asn	1824
20	ogg Arg	619 917 994	aro	atq Net	atg Met	gcc Ala	atc 11e 615	ctg Leu	gto Vai	aac Ash	aoc Thr	gcc Val 620	agc Ser	atg Met	gge Gly	atc Tie	1872
25	gaq 610 625	cac	cac	gag Glu	cag Gln	009 Pro 630	gaq Glu	qag Glu	otg Leu	acc Thr	≻ Asn 635	atc Ile	ctg Leu	çaç Glu	atc	098 640	1920
30	aat Axn	gtg Val	gse Vai	ttc Phe	acc Thr 645	agc Sar	atg Met	ttt Phe	gco Ala	ctg Leu 650	Glu gaç	arg Met	acc	otg Leu	dag Lys 685	ctg Lau	1968
35	ger Ala	gce Ala	ttt Phe	660 619 699	ara Leu	the	gac Asp	tac Tyr	ctq Lea 665	egt Arg	aac Asn	pro	tac Tyr	88C 830 670	arc	tto	261€
40	gac Asp	ago Sex	atc fle 675	att	gtc Val	atc	atc	ago Ser 680	arc	tgg Trp	gag Glu	arc	gtg Val 685	ggg ggg	Gag	gcç Ala	2064
217	gac Asp	ggt Gly 690	erà aes	ong Leu	teg Ser	gtg Val	ctg Leu 695	arg	thr	etc Pha	yrg	ctg Leu 700	prq	arg	grg Val	ctq Leu	2112
45	aaa Lys 705	org Lev	gtg Val	ego Arg	tro Phe	ang Met 710	ear	goc Ala	atg Leu	agg Arg	ogc Arg 715	cag Gln	ctc Leu	gtg Val	gog Val	Ctc Leu 720	2160
50	atg Met	aaq Lys	soc Thr	atg Met	gac Asp 725	aac Aan	gtg Val	goo Ala	acc	ttc Phe 730	tgc Cys	arg Met	crg	ctc Leu	atg Met 735	ned	2208
55																aag Lys	2256
60	t to Phe	agc Ser	cts Leu 755	Arg	acg	gac Asp	act Thr	gga Gly 760	дас Азр	acq	gtg Val	Sto	gac Asp 745	Arg	aeg Lys	aac Asn	2304
uv	too Phe	980 Asp 770	Ser	ctq	crg Leu	rgg	900 Ala 775	ato	gto Val	act	gtg Vəl	ttc Phe 780	Gin	atc	ctc	apo Thi	2357

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Can Gin 785	gag Glu	gac Asp	tgg Trp	aac Asn	gso Vel 790	gai Val	ete Lec	Tac	ast Asn	990 Gly 793	acq Met	pcc Ala	tor Ser	act Th:	tut Sen 800	2400
205	rgg Frs-	goc Ala	ton Set	era Leu 805	tac Tyt	ict Pne	gto Val	gbo Ala	cto Leu 810	atg Sec	acc The	ttn Boe	ely egy	aac Asn 815	tet	2448
grg Val	ctc Led	ttc Phe	aac Aso 820	org Leu	beu beu	Awy	A. B	114	otg Læu	gtg Val	gag Glu	01A ddc	tt: 95e 830	cag Gin	gog	2496
C) b àsà	ggs	gac Asp 835	gcc Ala	aat Asn	age	zee Sar	tec Tyr 845	set Set	gaç Asp	gag Glu	gac gac	cag Gla 845	agc Ser	tca Ser	to: Sex	2544
																2592
gan Asp 965	pro	eag Lys	orc Leu	CAa pdo	cca Pro 870	ato lle	pro	at g Met	acc Thr	000 Pro 875	ast Asn	ggg Gly	Cec His	ong Leu	980 Asp 380	2640
coc Pro	agt Ser	ct.c	ecs 200	ctg Leu 885	81 X 38r	era aaa	cac 81s	es Leu	ggt Gly 890	oot Pro	gat Ala	erà eda	qor Ala	gcg Ala 895	Gly	2688
CCE	gcc Ala	npc Pro	oga Arg 900	ctc	tom Ser	ctg Leu	caq Gin	ccg Pro 905	gac Asp	ccc	atg Met	ctg Let	gtg Val 910	gcc Ala	ctg Leu	2736
ggc Gly	toc Ser	oga Arg 915	aaq Lys	agc Ser	agc Ser	gto Val	atg Met 920	tot Ser	cta Leu	gly	agg	atg Met 925	agc Ser	tat Tyr	gas Asp	2784
cag Gin	ege Arg 930	toc	ctg Leu	toc Ser	agc Ser	too Ser 935	egg	ago Sez	rcc	tac Tyc	tac fyr 940	ggg ggg	008 960	tçç	gly ggc	2832
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cac Sis	aag Lys	ccq	cog	tog Ser 965	gog Ala	gag Glu	782	gag Glu	Ser	ಓ≎ಟ	ctc	tot Ser	geg Ala	gag Giu 975	yr3 cdc	2928
gj À ååc	Gly	gge	gcc Ala 980	Arg cgg	gtc Val	tgc Cys	gag Qlu	gtt Val 985	gcc Ala	gcg	gec Asp	gaq Glu	990 990	oog Pro	ocg	2976
egg	gec	Als	820	ctg Leu	dab	The	Fro	Ris	goo	cac	His	Val	His	cac Ris	999 619	3024
825	His	Leu	góg Ala	cac His	Arg	818	ege Arg	His	cac His	ogs Arg	099 Arq 1020	The	atg	toc	att Les	3072
Asp	Ass	agg Arg	gac Asp	Ser	Val	Asp	ctq	pac Ala	Gin	ieu	Val	810	gcg	gtç	290 21y 1340	3120
	res cac are	non kegg pro Tro- gra atc Val Lau Val Cal Val	non kyg quo pro Tre Als pro Tr	nno Egg got ten pro Try Als Ser gra ato tid aam vsi Leu Phe Aso Ser Got g	non tig gio ion tin the Pro Try Als Ser Leu Bot Ser Leu Pro Asn Leu Ser Leu Pro Asn Leu Ser Leu Pro Asn Leu Ser Leu Cys Bob Ser Leu Cys Bob Ser Leu Pro Leu Cys Bob Ser Leu Pro Asn Leu Cys Bob Ser Leu Pro Asn Pro Arg Leu Cys Bob Ser Leu Pro Asn Pro Arg Leu Ser Pro Asn Pro Arg Leu Ser Pro Asn Pro Arg Leu Ser Pro Asn Bob Ser Leu Ber Pro Asn Bob Ser Leu Ser Pro Bob Ser Bob Ser Leu Ser Pro Bob Ser Bob Se	Tas	Tas	Tags Concept of the	Tags Tags	Tags Tags	The register of the rate and the great of the register of the register of the rate and the great of the register of the regist	non tig gio ten con ten int gio gio cot at accompany feb Try Als Ser Leu Tyr Ens Val Ala Leu Mer The Set Ser Try Ens Val Ala Leu Mer The Set Leu Tyr Ens Val Ala Leu Mer The Set Leu Tyr Ens Val Ala leu Mer The Set Leu Phe Ann Leu Leu Val Ala 11a lau Val Dlu Sec Can accompany feb Leu Phe Ann Leu Leu Val Ala 11a lau Val Dlu Sec Can accompany feb Leu Phe Ann Leu Leu Val Ala 11a lau Val Dlu Sec Can accompany feb Leu Can Glu Gly Arp Ala Ash Arg Ser Tyr Ser Asp Glu Rap 855 man 11e Glu Glu Phe Asp Lys Leu Gln Glu Gly Leu Sec Can accompany feb Leu Cys Pro 11e Pro Mer The Pro Aun Sec Can accompany feb Leu Gly Ris Leu Gly Pro Ala Sec Can accompany feb Leu Gly Ris Leu Gly Pro Ala Sec Can accompany feb Leu Gly Gly His Leu Gly Pro Ala Bet Arg Lys Ser Leu Gly Ris Leu Gly Pro Mer The Arg Lys Ser Leu Gly Ris Leu Gly Arg Gly Ser Arg Lys Ser Ser Val Mer Ser Leu Gly Arg Gly Ser Arg Lys Ser Ser Val Mer Ser Leu Gly Arg 930 mag accompany feb Leu Gly Gly Bls Gly Bls Can accompany feb Leu Ser Leu Gly Ris Ris Leu Gly Arg 930 mag accompany feb Leu Gly Gly Gly Ala Arg Val Cys Glu Val Ala Ala Arg Ser Leu Leu 985 mag accompany feb Leu His Thr Pro Ala Ser Leu Leu 985 mag accompany feb Leu His Thr Pro Ris Ala Bls His Ala Asp 980 mag accompany feb Leu His Thr Pro Ris Ala Bls His His His Arg Arg Ala Ala Pro Leu His Thr Pro Ris Ala Bls His His His Arg Arg Ala Ala Pro Leu His Thr Pro Ris Ala Bls His His Bry Arg Arg Arg Ala Ala Pro Leu His Thr Pro Ris Ala Bls His His Arg Arg Ala Ala Pro Leu His His Arg Arg Arg Ala Arg	Denoting give the cite that into give give cot at any time pro Fro Fro Als Ser Leu Tyr Ens Val Ala Leu Mer Thr Ens 100 give cot at any give give the ser Leu Tyr Ens Val Ala Leu Mer Thr Ens 100 give cot give give give val Ala Leu Mer Thr Ens 100 give cot give give give val Ala Leu Mer Thr Ens 100 give give year give and cot give give give give cot give give give cot give give give give cot give give give give give give give give	non right of the other than lett git git of the Arg and the gith feet free Arg and the gith feet free Arg and the gith feet free Arg and the gith gith and the lett free free Arg and the gith feet free Arg and the gith feet free Arg and the gith feet free Arg and the gith free free free free free free free fre	non tig gic for one rise lett gic gic cit atg and the gip and per Try Als Ser Les Tyr Phs Val Ala Leu Ser Thi See Gly Ann abb Sil Ser Leu Tyr Phs Val Ala Leu Ser Thi See Gly Ann abb Sil Ser Leu Tyr Phs Val Ala Leu Ser Thi See Gly Ann abb Sil Ser Leu Tyr Phs Val Ala Leu Ser Thi See Gly Ann abb Sil Ser Leu Tyr Ser Ser Ser Ser Ser Ser Ser Ser Ser Se	Denoting got too offer and not got got onto any and the pro Try Ris Ser Les Try Ens Val Ala Les Mer The Ens Gly Ash Try Big offer the and onto onto got got got got got got got got got g

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3	gag gac Glu Asp	030 Ba 078 As 106	a Gly	agg atg Asg Met	occ as Pro 3s	ex Ile	goc aaa Ala Lys	gan gtc Asp Val 1070	the acc Phe Thr	3216
10	Lys Met	ggc ga 617 As 1075	e ege e Arg	GLy Asp	oge g Arg G 1086	17 Glo	Asp Glu	dag gea Glu Glu 1895	atc qac Tie Asp	3264
15	tau acc Tyr Thr 1090	cig tg Led Cy	s Phe	aga gte Asg Yal 1095	ege å: Arg b	ag atg ys Met	ate que ile Asp 1100	gid bat Val Tyr	aan coc Lys Pro	3312
20	qac tgg Asp Trp 1105	tqc qa Cys Sl	u Val	ngn gaa Arg Glu 110	gao t Asp T	rp Ser	gto tac Val Tyr 115	eto tho Leo Phe	tet ses Ser Pro 1120	3360
	gag aac Glu Asn	agg tt Arg Pr	1125 e Arg	gte etg Val beu	tgt c. Cys G.	ag acc lo Thr 1130	etc att Tie Tie	Ala 818	Ass ctc Lys Leo 1135	3409
75			1 Val			le Phe			acc acc The Ile	3436
30	Ala Leu	gag cq Glu Ar 1155	g sst g Pro	Gla Ile	qaq q Glu A 1160	oc ggc la Giy	Ser Thr	gaa cgc Glu Azg (165	ate trr The Phe	3504
35	oth add Leu Thr 1170	Val Se	ro aso er Asn	tac atc Tyr 1le 1175	ttc a Pha T	cg gee hr Åla	acc ttc Tle Phe 1180	gtq ggc Vai Gly	gag atg Glu Met	3552
40	aca ttg Thr Lau 1185	aag gl Lys Va	il Val	tog btg Ser Lea 190	ggo c Gly L	su Tyr	ttc ggc Phe Gly 195	gag cag Glu Glo	gcg tac Ala Tyr 1200	3600
,,	era ege Leu Arg	agc ag Ser Se	ic tgg er Trp 1205	aac gtg Asn Val	ctg g	at ggc sp Gly 1210	ttt ctt Phe Leu	Yal Phe	gtg tcc Val Ser 1215	3649
45	atc atc	gac at Asp 11	le Val	gtg toc Val Ser	otg g teo A 12	le Ser	gcc ggq Ala Gly	gga gcc Gly Ala 1230	asg atc Lys Ile	3696
30	Leu Gly	gto o: Val Le 1235	to oga to Arq	Val Leu	egg c Arg L 1240	to oty eu beu	Arg Thr	cta ego Leo Arg 1245	eca etq Pro Leu	3744
33	agh gro Arg Val 1250	Tie Se	er Arg	geg eeg Ala Pro 1255	Gly L	tg aag eu Lys	ctg gtg Leu Vai 1260	gtg gag Vai Glu	aca ctc The Lea	3792
60	ato rec 13a Ser 1265	toc c	bu Lys	ccc átc Pro lie 1270	ggc a Gly A	ss Tle	gtg ctc Val Leu 1275	ato ego Ila Cys	tgt gcc Cys Ala 1280	3840
SV.				Gly Ile				Phe Lys	gga aag Gly Lys 1295	3888

	the two dan Eye ong que ghy gat set ege has also acc sak 920 109. Phe Tyr Hip Gys Leu Gly Val. Asp Thr Ary Ann Ite Thr Ann Ang Set 1300. 1305	3936
5	Que tọc ang gọc gọc san tạo cặc tạy giữ các các các hàa tạc bào tha Asa Tọc Ang Trọ Val Hir His Lya Tyr Asa Phe 1326 1329 1329 1329 1329 1329 1329 1329 1329	3984
10	gan eac ctg ggo cag got mig ang noo oho tit gno chg gce too wag Amp Amp han leu Bly Gln Als Leu Met Ber Leu Phe Val Lau Als Ser Lys 1330	4032
13	gat ggt tgg gtg aec atc atg tec.aet gge ctg get gct gtt gct gtg Aep Giy Trp Val Aen ile det Tyr Aen Giy Leu aep Ale Val Ale Val 1346 - 1355 - 1350 - 1350 - 1350 - 1350 - 1350	4080
20	gain mag day not gag are aar can aso one tag atg ong ong haw the Asp Gln Bro Vel The Ash has Ash Bro The Met Leu Leu Tyr Phe 1390 $$	4129
417	ato too big one are give ago the titt gig ofe aan ang tit gig Lie Ser Pho Lou Lou Lie Val Ser Phe Phe Val Lou Ash Met Phe Val 1380	4176
25	ggr gto gtg gag man the cac sag tgc cgg cag cac cag gag gcc Gly Val Val Val Glu Ann Phe Mis Lys Cys Arg Gln His Gln Glu Ala 1395 1400 .	4224
30	gaa gag gos ogg ogg ogt gag gag sag ogg otg ogg ogt otg gag aag Glu Glu Ale Arg Arg Arg Glu Glu Lys Arg Leu Arg Arg Leu Glu Lys 1415	4272
35	sag ogo ogg aag goo oag ogg otg ood táo tat goo acc tat tgt CAC Lyw Arg Arg Lys Ala Gin Arg Leu Pro Tyr Tyr Ala Thc Tyr Cys Ris 1423	4320
40	and egg ong one also can ten and tgs sec age can tan eng gas ato the Arg Leu Lie His San Met Gys Thr Ger His Tyr Leu Asp Ile 1455 $$1450$	4368
70	tto ato aco tin ato ato tgo oto aac stg gto aco atg two cts gag. The Tie The Fie lie Cys Leu Ran Val Val The Met Sar Leu Glu 1465. 1476 .	4416
45	can tao aat cag cac ang ton org gag acs got oto aag tao tgc aac tis Tyr Asn Gin Pro Thr Ser Leu Giu Thr Ala Leu Lys Tyr Cys Asn 1475 $$1480\ \ \ 1485$	4464
50	tat ang the doe act gire tit gig thy gag gir gig tig dag cit gig Tyr Mer Phe Thr Thr Val Phe Val Leu Glu Ala Val Leu Lys Leu Val 1490	4512
.55	gca ttt ggt etg agg ege tta tte akg gac ega tgg acc eag etg gac Ala Phe Gly Leu Arg Arg Leu Phe Lya Asp Arg Trp Asm Sin Leu Asg 1595	4560
60	ong goo att gra ona ong nos gid atg ggd atc aco ong gag gag atc beu Als fie Val Leu Leu Ser Val Met Gly fie The Leu Glu Gly fie 1930 . 1933	4606
00	gag and sat gog god sig one and each one and and one at any Glu file Asy Alia Ale Leu Pro file Asy Pro The file file Asy Lie Mer 1540	4656

	70	
	agg gtt big ogd att god dge gtg big aag itg tij seg etg god bus årg Val Lau Ang lle Bla Ary Val Leu byz Leu Leu Lys Med Ala Thr 1888 - 1888 - 1885	4704
÷	oge aig cyg god oig oig ged acg gig gig dea got tig dal dea gig Gig Mer Arg Ale Leu Leu Arp The Val Val Ola Hal Leu Pro Glo Val 1970 1880	8757
10	ggo eac ctg ggo ste sto kto and cty bto the htm and tak got got Sly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Fle Tyr Ala Ala 1883 - 1895 - 1896 -	4800
15	cts ggg gtg gag cts tit ggg 880 220 gic 193 bas gar gar gag aks ctg Leu Gly Val Gla Leo Phe Gly Lys Leu Val Cys Ass Rap Glu Ass Pro 1965 .	4848
20	rys gag ggc atg age cgy cat gcc act tre gag aac sto ggc atg gcc Cyc Glu Gly Met Ser Arg Ris Ala Thr Pha Glu Asn Phe Gly Met Ala 1620	4896
	tto occ and och ned dag god toc acq ggt yan amb tgg amd ggg are the Leu Thr Leu Phe Gin valuer thr Gly Amp Am Top Am Gly Ile 1635 $$	4944
25	atg asg gac acg etg ggg gac tgc acc cac gac gac ggc agn tgc etg Met Lys Asp Thr Leu Arg Asp Cys Thr Hiz Asp Giu Arg Ser Cys Len 1650 1660	4992
30	ago ago che cag tot gtg toe coe toe toe toe gue ago toe gtg of: Ser Ser Leu Gin Phe Val Ser Pro Leu Tyr Phe Val Ser Phe Val Ser Phe Val Leu 1665 $$ 1670 $$	9040
35	acc gog eag the gog etc atc aac gtg gtg gtg get gtg etc atc aac Thr Ala Gln Phe Val Leu Ile Amn Val Val Val Ala Val Leu Nec Lya 1685	5088
40	can mig gac gac age had amy gag god dag gag gac dod gag atg gat His Leu Amp Amp Ser Amn Lya Ghu Ala Gho Ghu Amp Ala Ghu Met Amp 1700	5136
10	gcc gag etc gag etg gag atg gec eat ggc etg ggc eet ape een aug Ala Glu Leu Glu Leu Glu Het Ala His Gly Leu Gly Pro Gly Ero Ard 1715 1720	5184
43	org det ecc gge tee deg gge gee det gge egs ggg eeg gga ggg geg Lee Pro Thr Gly Ser Pro Bly Ala Pro Bly Arg Gly Pro Bly Gly Ala 1730	5232
50	gge gge gge gac acc gat gge gge kg kge egg ege kgc kac keg aly Gly Gly Gly Sly Asp Thr Asp Gly Gly Lea Cys Asp Asp Cys Tyr Ser 1746 $$ 1750 $$ 1750 $$ 1750 $$	5280
35	cct gcc cag gag aac crg tgg ctg gác agc gtc tct tra atc aac aag Pro Ala Ghn Giu han Leu Trp Leu Ary Ser Val Ser Leu Iie Ile tys 1765 $$	5328
60	gác tọc thợ gay gay gay chy ácc átc átc gác sắc chy toy gặc teo Amp Ser Leu Giu Giy Giu Leu Thr Tie Tie Amp Aan Leu Sar Gly Ser 1785	5376
00	are see can can the two top one goo ago tay bag say tot one can lie Phe His His Tyr Ser Ser Fro lie Gly Cye Lye Lye Cys His His 1795 1805	5424

	285 285	aaq Lys 816	ças Glo	gag Glu	ana	Gay	Pro 815	aga Arg	sca Pra	tot	673	tgg Trp 820	gtg Val	acq Thr	acc		5465
<i>5</i>	<210 <210 <212	> 53 > 58	555 8A														
10	<220	> CI	28	(350)													
15	<400 atg Met	get	gan	age Ser	aad Asn S	tra	pro	000 Pag	nca Set	tot Ser 10	gca	gca Als	gor Ala	cos Pro	gaa Ala 15	ocr Pro	4.8
20	gaç Glu	oog Pro	gga Gly	acc Ile 20	act Thr	gaç Glu	cag Gln	gro	999 Gly 25	999 929	cgg Arg	agt Ser	510 ccc	cct Pro 30	eca Pro	toc Ser	96
25	Pro	era Pro	ggc Giy 35	otg Løu	gag Glu	gag Glu	Pro	ttg Leu 40	gas Glu	gga Gly	acc Thr	aac Asn	000 260 45	gac Asp	gec Vai	oca Pro	144
30	cat 818	oca Sho 50	gac	org Leu	gct Ala	Pro	get Val 55	got	tto Phe	ttc Phe	CAs	cog Leu 60	ege Arg	caq Gln	acc Thr	acç Thr	197
35	age Ser 65	Sio	Yad	aac Asn	t.gg Trp	tgt Cys 70	atc	aag Lys	atg Met	get Val	tgt Cys 75	ääC Asn	sto	tgg Trp	ttc Phe	gag Giu 80	240
	tqt Cys	gtg Vel	agc Ser	atq	org Leu 85	git Val	att. Die	ctg Leu	ctg Leu	aac Asn 90	tgr Cya	grg Val	acc Thr	ctg Leu	gga Gly 95	atg Net	288
40	tac Tyr	eag Gis	CCa Pro	tgt Cys 100	gat Asp	gac Asp	atą Mat	gag Glu	tge Cys 105	ctg Leu	teg	gac Asp	arq cgt	tgc Cys 110	aag Lys	atc Ile	336
45	CEG	cag Gln	gro Val 113	tto	get Asp	gac Asp	tto Pbe	atc Tle 120	ttc Pha	atc	Phe	ttt	gor Ala 125	arg Met	gag Glo	atg Met	384
50	grg Val	ctt Leu 130	Lys	atg	giq Val	goo Ala	ctq Leu 135	ggc Gly	att	ttt Phe	Gly	aaq Lys 140	aag Lys	tgz Cys	tac	000	432
53	99a 61y 145	gac Asp	aca Thr	tgg	aac Aso	Arg 150	rea	gat Asp	rtc Phe	tto	att Lie 155	gtc Val	atg Met	gca	G1y	atg Met 160	480
	gtt Val	gag Glu	Tyr	tet Ser	ctg Leu 165	geo	cta	Cag Gin	aac Asn	atc lle 170	Asn	ctg	tca Ser	gcc	atc lle 175	Arg	526
60	act	gtg Val	Arg	gtc Val 180	ctg	agg	oct Pro) Les	aaa Lys 185	Ala	ato	880 Aso	Arg	gra Val 190	610	ago Ser	\$76
	atg	cąą	200	org	grg	830	ct.g	OR B	650	gac	acq	etg	220	atg	ctg	993	624

	Met.	grû	Die 191	bec	Val	Ass	Leu	200 200	Let	Asp	Thr	let	Pro 205	Me t	Leu	Gly	
5	asc Ass	gtg Val 210	cen	stq Les	tto Leu	CA8 : 3:	ccc Pne 215	ttc Phy	gto Vel	tto Phe	tto Phe	átc 115 220	tico Pho	qqc Gly	sec Ile	sin Tle	672
10	990 Gly 225	gtg Val	cag Gin	ata Leu	tgg Trp	goa 81a 230	gge Gly	ctq Leu	cts Leu	egg Arg	880 880 235	ogo Arg	C/a FGC	ttc Phe	ong Les	gaa Giu 240	720
	83a dad	aac Agn	ttc Phe	acc	ata Ile 245	caa Qin	ely asa	gat Asp	gtg Val	gen Ala 250	otg Læu	000 800	oot Pro	tat Tyr	tac Tyr 255	cas Gln	768
13	eca Pro	gag Glu	gag Glu	gat Asp 260	yaç qak qak	gag Glu	atg Mat	Pro	ttt Pne 265	atc	tgo Cys	icc Ser	oog Leno	act Thr 270	GIY	gae Asp	816
20	aat Asn	gge	atc Ile 275	atq Met	ggc Gly	tgo Cys	cac His	gag Glu 280	atc 11e	cce Pro	cca Pro	ctg Leu	aag Lys 285	gag Glu	cag Gin	O[A ddc	864
25	ogg	gaa Glu 290	tgc Cys	t.gc Cys	tea tea	toc Ser	aaa Lys 295	gat Asp	gar Asp	geg Věl	tat	gac Asp 300	ecc Phe	999 Gly	gog Ala	ggg Gly	912
30	ege Arg 305	Cag	gac Asp	otc Leu	aac Asn	geo Ala 310	agc Ser	ggt Gly	ctg Leu	tgc Cya	gco Val 315	aac Asn	tgg Trp	aac Asn	ogc Arg	tac Tyr 320	960
20	tac Tyr	aac Asn	gtc Val	tgc Cys	age Arg 325	aog Thr	ggc	aac Aan	gcc Ala	aec Aen 330	act Pro	CSC His	aag Lys	ggc	gcc Ala 335	atc Ile	1008
35	aac Asn	ttr. Pne	gac Asp	480 Asn 340	att	ggc Gly	tat Tyr	gcc Ala	ggg Gly 345	att	grg Val	att Ile	ote Phe	cag Gin 350	gtg Val	atm Ile	1056
40	act	ctg	gaa Glu 355	Gly	tgg Trp	grg Val	gag Glu	Tle 360	atg Met	tac Tyr	tat Tyr	gtg Val	atg Met 365	gac Asp	gca Ala	cet Mis	1104
45	tet	Phe 370	tac	aac Asn	ttc	att	tac Tyr 375	tts Phe	att	ctq	oto Leu	ato Ile 380	ata Ile	grg Val	gly ggc	coc Ser	1182
50	btc Phe 385	Phe	atg	ato	aac Asn	ttq Leu 390	ege Cys	utc	gtt Val	gtc Val	ata Ile 395	gca Ala	acc	ceq Gln	ttc Phe	tet Ser 400	1200
ee	gag Glu	acc	aaq Lys	caa Glo	agg Arg 405	gaq Glu	dac	egg Arg	ctg	Atq Met 410	ctg Lau	gag	Caa Gin	yrğ	cag Gln #15	ego Arg	1248
53	tan	erg Leu	tec	too Ser 420	Sex	ang	-gtg Val	goo	agt Set 425	Tye	gct	gaq Giu	ecc Pro	99% Gly 430	gat	Ego Cys	1298
60	tat	gan	gaq Glu 435	116	tto	Gin	tat Tyr	gtc Val	Cys	cac Sis	atc	Leo	age Arg 445	Lys	goo Ala	aag Lys	1344
	cgc	ege	gec	cta	900	. 050	sac	caq	gne	ctg	cag	990	egg	cgc	Cag	gua	1392

	Arg	Ara 450	Ala	Lea	913	Uwa	Tyr 495	910	Alá	Las	Sin	Asn 460	heg.	hrg	Gin	Ala		
- 5	819 Met. 665	ggc Gly	eeg Pro	999 Gly	aca The	006 9ro 470	gcc Ala	ect Pro	gcc Ala	Lys	ttt 875 475	61 y 939	occ Pad	cat His	goo Ala	889 Lys 480	1440	
10	gag Slu	000 Pto	ago Ser	cat His	egc Cys 483	aag Lya	etg Lev	tgo Cys	oca Pro	cga Arg 490	cac Kis	595 \$#1	220	org Lea	gac Asp 495	ecc Pro	1489	
	aco	ess	cac 818	aca Thr 500	etg es3	gbg Val	cay Gln	occ Pro	acc Tle 505	tot Sec	gen Ale	ann #1%	rea crâ	gcc Ala 510	tot Ser		1536	
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25	tot Ser 545	gca Ala	gag Glu	gcc Ala	gaa Glu	gcs Ala 550	aat Asn	999 619	gat Asp	gga Gly	otc Seu 555	cag Gin	agc Ser	agt Ser	gaç Glu	gat Asp 560	1680	
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2.2	gcc Ala	oga Arg	utg Len	tgt Cys 580	ggg Gly	gat Asp	gtg Val	tgq Trp	090 Arg 585	gag Glu	aca Thr	oga Arg	aaa Lys	289 Lys 590	ctg Leu	yrd cdd	1776	
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45	gag Glu 625	Len	acc	aac Asn	atc	otg Leu 630	Glu	atc	tgc Cys	aat Asn	gtg Val 635	Val	tta Phe	acc	Ser	ang Met 640	1920	
ŝθ	ttt	gcc Ala	ctg Les	gag Glu	arg Met 645	fle	ctg	aaa Lys	ceg	gcc Ala 650	ALS	nnn Phe	ggg	ctc	Phe 655	gac Asp	1968	
27	tac	ctq Leu	cgg Arg	aac Asn 660	5,20	tac Tyr	aac Aac	ato	ert Phe	Asp	ago Ser	ato Ile	ato Tle	gto Val 670	116	atc lie	2015	
55	890 Se:	ato : Ile	tgg Trp 675	Glu	and	Yai	ggg Gly	Glo 680	Aia	gac Asp	gly	GTA add	ctq Lau 685	261	gtg Val	ren 52d	2064	
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	gee	g one	g egg	cqc	e eaq	ests	geg	géç	cto	acq	aaş	acto	ang	gac	. aac	900	2160	

	Ala 705	Leu	Asq	Arg	Sip	De: 1	Val	VAL	Linu	849 ft	Lys Tis	Thi	Met.	Asp	Asa	7al 720	
5	gar Als	acc	inc bhe	tgc Cys	alg Met 725	cta Leg	rtc Leu	sog	red	ttt Pns 730	acc Tlé	773 888	arc Ile	ttc Phe	age Ser 735	ato Lie	2208
10	cto heu	63 h 883	atg Net	cat Ris 740	ato	ttt	ggo GLy	ogs Oys	556 178 745	550 849	ser ser	one Leu	ogo Arg	acg Thr 750	gac Asp	acg The	2256
	994 917	gac Asp	Roc Thr 755	gtt Val	oot Pro	gac Asp	agg Arg	6ag Lys 760	aac Asn	tto Phe	gat Asp	tos Ser	763 264 763	ceg Leu	1tb	gcc Ala	2304
13						caq Gin											2352
20	erq Leu 795	rac Tyr	aat kso	ggc Gly	atg Met	gaa Ale 790	rec ser	acc Tor	acc Thr	000 Ero	tgg Trp 795	gcc Ala	too Sar	ctc Les	tat Tyr	rcc Phe 800	2400
25	gct Val	qcc	ota Leu	atg Met	acc Thr 809	ttc Pho	Gly ggc	aac Asn	tac Tyr	grr Val 810	era Leu	ttc	ast Asn	atc Leu	ctq Leo 815	grg Val	2449
30	gct Ala	atc	cuq Leu	gra Val 820	Glu	ggt Gly	ttc Phe	cag Gin	got Ala 825	gag Glu	Gl Y	gac Asp	got	aat Asn 830	ogt Arg	500 581	2496
35	tgo Cys	tot Sec	gat Asp 835	gag Glu	gac Asp	cag Gln	agc Ser	bcs Ser 840	too Ser	aat Asn	ttg Leu	gag Glu	909 Glu 845	ttt Phe	gac Asp	aaq Lys	2544
33	ctc	eca Pro 850	gag Glu	ggc Gly	otg Leu	gat Asp	eac Asn 855	agt Ser	aga Arg	gat Asp	cts	aaq Lys 860	ara Leu	tgc Cys	cca Pro	ata	2592
40	ccc Pro 865	atg Met	aca Thr	000	aat Asn	gga Gly 870	cac His	Ceu	gac Asp	oct Pro	agc Ser 875	ctc	pro	crg	gly	gcg Ala 880	2649
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50					Val	ctg Leu										gtc Vai	2736
55	atg Met	tec	ctg Leu 915	gge	agg Arg	atg Met	ago Ser	tat Tyr 920	gat Asp	cag Gin	cga Arg	toc Sar	trq Leo 925	Ser	ago Ser	zon Ser	2784
الدائد	egg Arg	age Ser 930	Ser	tac	tac	ggg Gly	000 2ro 935	tgg Tro	ggc Gly	ege	agt Ser	340 015 888	acc Thr	tag	get Ala	age Ser	2832
60	ogo Arg 945	Arg	ted	ago	tgg	aac Asn 950	Ser	ceq	aaa Cys	cac	669 Lys 955	Fro	çcc Pro	tca Ser	gct Ala	gaq 61u 960	3480
	cat	gag	ten	cca	orq	cet	ááð	923	åår	gga	ââr	ags	790	gto	बदुद्	ğec	2989

	Fie Ğlu	Sex 1	Jeu Leu 988	Ser Gly	Glu	Gly	GLy 975	Gly	Ser	078	Val	Arg 975	Alu	
5	tgt gaa Cym Slo	GLY A												2974
10	got cos Als Ero	cac 3 Bis 7 995	gog cac Mia His	cac gog Ris Als	Cac 818 1000	Sat Sis	gga Gly	ase Fro	His	219 Lex 2005	goa Ala	cac His	agt Arg	3024
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,,,	gec ctg Asp les 1025	gga t	gag etg Slu beu	grg ope Val Fro	yaî Vaî	ytg Val	GJA GGA GGC	goc Ala 1035	cac Mis	tca Ser	agg Arg	gcc Ala	gct Ala (040	3120
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33	gto ngo Yal Arg 1090	Lys	atg att Met Tle	gat gts Asp Val 1095	Tyr	asg Lys	ccg Pro	Asp	tgg Tep 100	tgc Cys	gaa Glu	gto Val	ogc Arg	3312
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40	cig tgi Leo Cys	Cag :	acc atc Thr Ile 1125	att got flm Ala	cac His	aag Lys	ctt Leu 1130	ttt Phe	gac Asp	tac Tyr	gtg Val	gtc Val 1135	ren	3408
45	goc ttr Ala Phe	Lle	ttc ctc Phe Leu 140	asc tg: Asn Cy:	: Ile	acc Thr 1145	att	got Ala	ctq Leu	Glu	aga Arg L150	naa Pro	cag Gln	3456
50	att ges lle Glu	gor Ala 1155	gor ago Gly Ser	act gad Thr Gla	3 090 3 Arg 1160	atc Ilm	ttc Phe	cto	Thx	geg Val 1165	tet Ser	Asn	tac Tyr	3504
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22	ong ggo Leu Gly 1185	ctg Leu	Tyr Phe	ggt ga/ 61y 61s 1190	g cag 1 Gls	geg	Tyr	ctg Lea 1195	ogt Arg	agc Ser	agc Ser	Tep	485 Asn 1200	3600
60	gta ctg Val Leb	gat Asp	ggt ttc Gly Pha 1209	ctg gto Leu Va	ttt L Pne	gto Val	rcc 5er 1210	ato	acc lle	gat Asp	sto Tle	gra Val 2151	org Val	3648
	toe gag	gaa	ter pet	299 49	a gad	420	acc	atg	999	900	272	çgg	320	3696

	Ser Val Als Ser 1220		Ala Lys lie Lev Sly Ye. Let Arg Yel 1225 1230	
S	cty cgg cit cty Leu Azg Leu Lau 1235	Arg Thr Leu	cg: tot try agg grt ast agr cgg gcc Ary Pro Leu Arg Val Ile Gar Arc Ala 240	3744
10	cot gag ong was Pro Gly Let Ly: 1250	ctg gtg gta Leu Val Val 1255	gay acg etc atc ton ton the day occ Glu Thr lan Ila Ser Ser Leu Lyo Pro 1260	3792
15	att ggg aan atd Na Gly Aan Nie 1265	qto old ato Yal Leu lle 1270	tgo tgt god too too ato ato sto ggo Cys Cys Ala Phe Phe Ile Ile Sos Gly 1275	3846
1.0	atc ctg ggg gcg Ile Leu Gly Vel	cag ctt ttc Gln Lea Pbe 1295	ass ggo eag tto tac cat tg: tig gga Lys Gly Lys Phe Tyr Bis Cys Leo Gly 1295	3888
20	gtg gac acc cgs Val Asp Thr Arc 1300	Asn Ile Thr	Asc ogs tot get tge gig geg get asc Asc Arg Ser Asp Cys Val Ala Ala Asc 1305 1310	3,936
25	tac ogn egg geg Tyr Arg Trp Val 1315	. His His Cys	tac asc tit gad asc cig ggc cag gCa Tyr Asn Phe Asp Ass Leu Gly Gls Ala 1323	3984
30	ttg atg tee etc Leu Mat Ser Lec 1330	o bit gid tig : Phe Val Leu 1335	goo too aag gam agg tag gtg aac atr Ala Ser Lys Asp Gly Trp Val Aso Ile 1349	4032
35	alg tat eat qqu Met Tyr Asn Gl) 1345	tta gat gct / Leu Asp Ala 1350	gtt gct grg gac cag cag cca gtg acg Val Ala Val Asp Gln Gin Pro Val Thr 1355	4000
33	and cad sad cod Ash Ris Ash Ped	tgg atg cta Trp Met Leu 1365	dbq tac tic att tog the ctg ctc atc Leu Tyr Pho Ilo Ser Pho Leu Leu ilc 1370	4128
40	gto ago tto tt Val Ser Phe Phi 138(e Val Leu Asn	atg fit gig ggc gtg gtc gtg gag aac Met Phe Val Gly Val Val Val Giu Aso 1385	4176
43	tto cac aag tg: Phe Bis Lys Cy: 1395	Arg Gln His	tay gag got gag gag gog tag agg cgt Gin Glu Ala Glu Glu Ala Atg Arg Arg 1400	4224
50	gay gay ass og Gin Gin Lys Ar 1418	g etg egg ege g Leu Arg Arg 1415	ctg gas sag and cgc cgt sag got csg Leu Glu Lys Lys Arg Arg Lys Ala Glo 1420	4272
**			tam tg: occ sos sgg clg tto sto car Tyr Cys Pro Thr Arg Leu Leu Ila His 1435	4320
<i>33</i>	tee stg tgc ac Ser Het Cys Th	t ago cac tac r Ser Ala Tyr 1445	cty gas are the are ace the ate ate Leu Asp Ils Phe Ile Thr Phe Ile Ils Ils 1455	4368
60	tgc ctn sat gt Cys Leu Asn Va 146	. Val Thr Met	ter TCg gag can tan asc cag uot ack Ber Lau Glo Wis Tyr &so Gin For Thr 1455	4416

too ote gas ace god ott mas red too sec two ets tto aco mot god 1464

	Ser Lou Glu Thr Ara Lou Lys Tys Cya Abn Tyr Net Pos Thr Tor Vol 1475 1486	
ã	trt grg nig gag got gig otg aag olg gog goe olt gee org agg sys Phe Val tha Glu Ala Val bed bys Leu Val Ala Phe Gly Leu Arg Arg 1490 - 1590	4512
10	the the man gam end egg eac eag etg gas etg get att gen mig etg Phe Phe Lyd Asp Ary Trp Ash Gin Leu Asp Leu Ala His Vai Leu Leu 1805 - 1810 - 1810	4560
1.5	too gto abg ggg ate ace ong gag deg ate gag ate aat goo goo of Ser Val Met Sig fie The Leu Siu Siu Lie Siu lie Asn Als Ala Leu 1825 . 1830 .	4608
13	occ atc and cor and sto ste out atc stg out get out out out atc govern lie as then the fire file and lies that file the arg lie was file and 1540	4636
20	cgg gtg ttg aag cte ttg aag mtg gin and ggs mtg cgg gcc ctg ctg Arg Val Leu Lys Ewi Leu Lys Mmt Alm Thr Gly Met Arg Alm Leu Leu Leu 1555 1550 1566 .	4704
25	gac ana grg gra cag got ctg ber cag gtg ggc aac ctg ggc ctg oto Asp Thr Vai Vel Gin Ria Lew Pro Gin Val Gly Asn Lew Gly Lew Lew 1570	4792
30	tic and city city tic the are not got got eng god gig gag etc tic the Met Leu Leu Rem Fhe Fle Tyr Ala Ala Leu Giy Val Giu Leu Phe 1885	4800
3.5	gga aag ctg gto tgc aat gac gag aac csg tgt gag ggo atg ago cqg Gly Lya Leu $^{\rm A}$ l Cya Axn Axp Glu Aan Pro Cya Glu Gly Mer Sar Arg 1605 1610	4848
33	one goe see tit gam amo the gge atg gee the eto ang ote the day His Alm Thr Phe Glu Ann Phe Gly Mat Alm Phe Leu Thr Leu Phe Gln 1620	4896
40	gto too ace ggc gat amo tgg mat ggm att atg mag gmc mcc oth cgm Val Ser Thr Gly Amp Asn Trp Amn Gly Tie Met Lym Amp Thr Lau Arg 1835 $$	1944
45	gac tgt acc har gat gag cgc acg tgc cta agc agc ctg dag tit gtg Asp Cya Thr Bis Asp Glu Arg Thr Cya Leu Ser Ser Leu Cin Phe Val 1650	4992
50	tice cog etc tac thi gig age tic gig otc aca get cag the gig etc Ser Pro Leu Tyr Phe Val Ser Phe Val Leu Thr Ala Gin Phe Val Leu 1665 1675 1689	5040
55	ato aac gtg gtg gtg god gtg etg atg aae oat etg gat gac ago aac Tle Aan Val Val Val Ala Val Leu Met Lye Mie Leu Aap Aep Ser Aan 1680	5089
55	and ded goo cag gad gat gon gag atg gat got gag atc gad ctg gag Lya Giu Ala Gin Giu Asp Ala Giu Mat Asp Ala Giu Ila Giu Leu Giu 1700	5136
60	and good can ago one ggs even tag but byt but tag cut ago can ago one tag but Ala Bas Gly Lew Ciy Pro Cys Bro Gly Pro Cys Pro Gly Pro Cys 1778	5184
	con tgo oot tge eet tat san tgt gen ggn oog åga otg cou act agt	\$232

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tça	1730					Pro 1735	Cys	ALA	94.y	820	Arg 1740	Cesi	Pro	765	Sen		
Ser	GGT	200															
		Śĺý	Ala	220	999 617 1750	Yrd. ods	gga Gly	cos Ser	Giy	355 G17 364	gos Als	gly gly	gor Ala	qqa Gly	617 617 645	5280	
gac Asp	acc	Glu Glu	Ser	cac His 1765	otg L∉u	Cys	ogg Arg	HLS	29c Cys 1770	tat Tyr	tot Sex	cta Pzo	Ala	cag Gln 1775	gag Gin	5328	
#CC Thr	Ctq	t Tro	ctq Leu 1780	gac Asp	ago Ser	gtc Val	Ser	tta Leu (785	atc Tie	atc lie	aag Lys	A30	Ser 1790	ttg Lau	Giu gag	5376	
		ctg Leu 1795				Asp	Asq				Ser	Val				5424	
Tyr	Ala	Sec	ece	gac Asp	Gly	Cys	ggc ggc	aag Lys	tgt Cys	His	His	gac Asp	aag Lys	Caa Gin	gág Glu	5472	
Thr	ĞĹ			Pro	Ser				Met	Thr						3505	
<51	2> 1	19 283	sapi	ens													
030	0.5	. **															
	tac Tyr aca Thr 182 <21 <21 <21	tac god Tyr Ala 1810 Aca ggr Thy Cly 1825 <210> (<211> 1 <212> 1 <213> 3	1795 tao god rca Tyr Ala Ser 1810 aca ggt ctt Thr Gly Leu 1825 210 13 211 19 212 PRT 213 Homo	1795 tao goo tos tot Tyr Ala Ser Pro 1810 aca ggt ott cat Thr Gly let His 1825 <2210> 13 <2210> 19 <2210> 98T <2213> Homo sapi	1795 tao goo toa tot goo Tyr Ala Ser Bro Asp 1810 aes ggt ott cat coa Thr Gly Len His Pro 1825 <210> 13 <211> 19 <212> BR <213> Rome saplens	1795 tan gon tos tot gan gon Tyr Ala Ser Pro Asp Gly 1816 aca ggt ott nat nna ton Thr Cly Len His Pro Ser 1825 <210> 13 <211> 19 <211> PBT <212> PBT <213> Rome saplens	tan gon tha cut gon dgd tgt Tyr Ala Ser Pro Asp Gly Cys 1810 1815 aca ggt cut dat dda tod tgd Thr Gly Len Rie Pro Ser Cys 1825 <210> 13 <211> 19 <212> ReT <213> Rome sapiens	tan goo hoa con goo got tat goo Tyr Ala Ser Pro Asp Gly Cys Gly 1810 aca agt ott can nos hoo too too Thr Gly Len Ris Pro Ser Cys Top 1825 (210) 13 (211) 19 (212) PRT (213) Rome sapiens	1795 1800 tan goc nca tot goc gg tgt ggc agg Tyr Ala Ser Pro Asp Gly Cys Gly Lys 1810 1815 aca ggt ott cax occ boc tgc tgg ggg Thr Gly Lem Bis Pro Ser Cys Trp Gly 1825 1830 <z10> 13 <z11> 19 <z11> ERT <z12> BERT <z13> Bomo saplens</z13></z12></z11></z11></z10>	tan gon that the gon got tgt ggm and tgt Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys 1810 1815 area ggt tht bax one the tgc tgg ggg atg Thr Gly Len His Pro Ser Cys Trp Gly Met 1825 1830 <z10> 13 <z11> 19 <z11> PRT <z113> Home sapiens</z113></z11></z11></z10>	tangon nca tot goo got tat got aag tot oad Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys Hac 1810 1815 1816 1815 aca ggt ott cas one too tot tag ggg atg act and Thr Gly Leu Ris Pro Ser Cys Trp Gly Met Thr 1825 1830 1835 (211) 19 (212) PRT (213) Rome saplens	tan gon tos tot gon got tat got mag tot oan oak Try Ala Set Pro Asp Gly Cys Gly Lys Cys His Nis 1810 1815 1820 Aca ggt ctt cat one hoot tgo tgg ggg atg acc Thy Gly Leu Ris Pro Set Cys Tep Gly Met Thr 1825 1830 <210> 13 <211> 19 <2112> PRT <213> Romen suplems	1795 tan gon tea cet goc got tet goc aag tet oon cat gac Tyr Ala Ser Pro Asp Gly Cya Gly Lya Cya Hie Hie Asp 1816 aca got cet cat com too too too tog tog gog atg acc Thr Gly Len Hie Pro Ser Cya Tep Gly Met Tht 1825 <210> 13 <211> 183 Romo Saplens 1830 Romo Saplens	1795 1800 1805 tan goo tea cet goc got ett goc aag tot oac cat goc aag Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys His Nie Asp Lys 1810 1815 1820 aca ggt ett oat oos too too tog tyg ggg atg acc Thr Gly Len His Pro Ser Cys Tep Gly Met Tht 1825 1830 1835 <210> 13 <211> 183 Romo sapiens	tan gon toa cut gon gon tat gon and tot one cast you say cas Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys His Als Asp Lys Gln 1810 1820 aca agon cut can one too toe tog gog atg aco Thr Gly Len His Pro Ser Cys Top Gly Met Thr 1825 <z10> 13 <z11> 187 <z10> 187 <z10> RAR ASP Lys Gln 1835 <z11> RAR ASP Lys Gln 1835</z11></z10></z10></z11></z10>	1795 1800 1805 tan goc nea tet goc get tgt gge aag tgt oac cat gac mag caa gag Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys Him Nie Asp Lys Gln Glu 1810 1820 aca ggt ett cax oca tec tgc tgg ggg atg acc Thr Gly Leu Him Pro Ser Cys Trp Gly Met Tht 1825 1830 <z10> 13 <z11> 19 <z11> ERT <z12> BRT <z13> Homo saplens</z13></z12></z11></z11></z10>	1795 1800 1805 tag got nea ret got get teg get aag tet oat cat get aag cas gag Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys His Nie Asp Lys Gln Glu 1810 1820 aca ggt ett cas oot see tge tgg gg atg acc Thr Gly Leu His Pro Ser Cys Trp Gly Met Tht 1825 1830 5505 <210> 13 <211> 19 <212> PRT

Lys Met Ala

INTERNATIONAL SEARCH REPORT

Intern ial Application No PCT/US 98/23161

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/12 C07K14/705 C07K16/28 C12N5/10 G01N33/68

According to Internetional Potent Classification (IPC) or to hom reliconal dissentation and IPC

8 FIELDS SEARCHED

Nonmum chocumonistion sessional (chassification system lottowed by classification symbols) IPC 6 CO7K

Documents for searched effor their moreover placementation to the extent that such declinered are included in the listis searched

Electronic total base consulted curving the international passed (name of take base and, where machine, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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*	NOONEY JM (REPRINT) ET AL: "Identifying neuronal non-L Ca2+ channels - more than stamp collecting?" TRENDS IN PHARMACOLOGICAL SCIENCES, 10-1997, 18, 363-371, XP002093637 see page 369, right-hand column - page 370, right-hand column	1,2, 10-16, 20-22
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16 February 1999 09/03/1999

Name and moving address of the ISA Authorized others European Patent Office, P.S. 5616 Patentham 9 Ns. - 2280 HV Rigneys Fel. (+31-70) 340-3040, Tx. 31-651 epo m. Fax: (+31-70) 346-3016 Gurdjian, D

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INTERNATIONAL SEARCH REPORT

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